BULLETIN

OF THE

TORREY BOTANICAL CLUB.

Vol. IV. New-York, January, 1873. **No. 1.**

1. **Meeting of the Club.**—At a regular meeting of the Torrey Botanical Club, held at the Herbarium, Col. Coll., January 7th, 1873, there were present, Messrs. Ruger, Wilber, Gerard, Barstow, Loew, Day, Bower, Hyatt, Hogg, Leggett, Merriam, Pollard, Le Roy, A. J. Ebell, A. Gatchett, and Dr. Torrey in the chair.

The Charter granted by the State, April 21st, 1871 to "The New York Botanical Club," and as amended, April 29th, 1872, to "The Torrey Botanical Club," was read and unanimously accepted, and Messrs. Leggett, Merriam and Hogg appointed a committee to prepare a Constitution and By-Laws to be presented for consideration at the next regular meeting of the Club, January 28th, 1873.

P. V. Le Roy, Secretary.

2. **A Bulletin Fund.**—The Bulletin is now entering upon its fourth year, and we know has been of service in bringing the students of Botany throughout the country into communication with each other. Our experience has satisfied us that this service was much needed. Our receipts do not yet quite cover our expenses, but the deficiency for the three years will probably not exceed twenty or thirty dollars.

It is our ambition to enlarge our little publication and make it perennial. To do this there is need of funds. Professor Tyndall pointed out, the other evening, that the votaries of science are not usually well endowed in this respect. We must look, therefore, for assistance to our men of wealth who take an interest in science either for its own sake or for its value as an essential element of civilization. An endowment of about three thousand dollars, would enable us, with our present list of subscribers, to double the number of pages and, perhaps, add some much needed illustrations. It is believed that the increased facilities would enlarge the number of our correspondents, and more than double the efficiency of the work in promoting the study of Botany.

We have now a charter, so that all funds contributed for this purpose will be legally guarded and strictly applied. Communications on this subject should be directed to the Treasurer of the Torrey Botanical Club, Herbarium, Columbia College, New York.

3. **Apocynum.** *No. 4.**—The facts presented in relation to the true stigmatic surface, the diaphragm, and the origin and position of the

* Some slight discrepancies in these articles are accounted for by the fact that, when begun, they were only intended to illustrate the fertilization of the flower, but the dissections necessary for accurate description disclosed some new facts about the glands that were too interesting and too closely connected with the subject to be omitted.

glands, would seem naturally to suggest some theoretical views which may prove of use as a guide for future investigations.

As the two styles in Apocynum and Asclepias are more or less distinct both above and below, and each of them belongs to a simple pistil, it is not easy to account for a five angled stigma with five pairs of glands. But if, as De Candolle supposes, the diaphragm in Apocynum is an extension of the filaments which has become attached to and surrounds the styles, its fivefold character is readily accounted for in Apocynum, and, in view of the close relationship of the Orders and the similarity of their fertilization, it would, perhaps, not be unreasonable to extend his supposition to what is called the peltate stigma of Asclepias.

It has been shown that the glands in Apocynum arise in pairs from the middle of the lobe of the diaphragm, where it joins the filament. It is possible, therefore, that these glands are likewise a modification of some organ of the stamen. Each half stretches away from the point of origin of the pair towards the adjacent cell of its own anther, but when mature, and ready to be carried away with the pollen, it lies so near to the half of the next pair on the right or left, that a new pair seems to be made up from and between adjacent stamens. Now Brown has shown that the dark glands in Asclepias consist at first of two distinct parts, and the halves are really related to different anthers. The parallelism of the cases may justify the hypothesis that these glands of Asclepias are members of the stamen, if that should prove to be true of Apocynum. Perhaps a clue to the glands is the pollen missing in the lower part of the anther of Apocynum.

On this theory, which is only an extension of what is already recognized, the so-called stigma and the glands of Asclepias are merely a modification of the stamens, arising from the adhesion of the latter to the style. The peculiarity of such adhesion in these two Orders is that it takes place in the upper instead of the lower part of the organs. W. H. L.

4. **Lygodium palmatum**, Swartz.—I have found the beautiful *Climbing Fern* growing in the drier parts of a sphagnum bog, some two miles westerly from Mount Pleasant, which is a little southerly from Matawan, Monmouth Co., N. J. The specimens were very fine and full of fruit. S. Lockwood.

5. **Aquilegia.**—In the *Flowering Plants of Great Britain*, by Anne Pratt, we find the following: "The French term this plant *L'Ancolie*; and it is *Der Ackeley* of the Germans. The Italians call it *Acquilezia*." In the Penny Cyclopædia we find: "*Aquilegia*, literally the *Watergatherer*, because the leaves collect water in their hollow." A friend informs us that he has noticed this peculiarity.

6. **Exchanges.**—J. W. Congdon of East Greenwich, R. I., desires to make arrangements for exchange of collections to be made the following season. He will collect all the less common plants of Rhode Island, and of Northern Vermont, including the Willoughby plants. He has quite a number of them in hand now.

He particularly desires to secure New Jersey, Southern and Western plants.

7. New Publications.—*The American Journal* for Dec. contains an instructive notice by Dr. Gray of Decaisne's *Monograph of the Genus Pyrus*.—The *American Naturalist* for Dec., appetizing articles on *The Vegetation of the Lower Wabash Valley*, and the *Alpine Flora of Colorado*; for Jan., Mr. Bailey on *Our Poisonous Plants*, and Mr. Biscoe on *The Study of Lichens*. We recommend all our readers to subscribe to this most deserving Journal. We notice an oversight in not crediting us with Mr. Merriam's article on *Trees and Rain*.—*The Popular Science Monthly* has an article on *Cultivating Wild Flowers*, by Rev. S. Lockwood.—*Nature*, Oct. 10 and 17, has some very interesting observations on the *Fertilization of a few common Papilionaceous Flowers*.

ORCHIDACEÆ.

ORCHIS, L.—O. spectabilis, L.; not rare; High Bridge; Hoboken; New Durham, etc.

HABENARIA, Willd., R. Br.—H. tridentata, Hook.; not uncommon; New Durham and Secaucus swamps; Closter, *Austin*; Big Swamp, Chatham, N. J.; Staten Island, *W. H. L.*—H. virescens, Spreng.; not uncommon; Closter, Secaucus, Chatham, N. J.; Yonkers, *Pooley;* Glen Cove, *Coles.*—H. viridis, R. Br., var. bracteata, Reichenbach; Closter, very rare, *Austin.*—H. Hookeri, Torr.; Westchester Co., *Le Roy;* abundant in Orange Co., *Austin.*—H. orbiculata, Torr.; Closter, very rare, *Austin.*—H. cristata, R. Br.; New Durham Swamp, *Torr. Cat.*, but not reported of late years.—H. ciliaris, R. Br. In a swamp in Love-lane, and in Hoboken meadows, *Torr. Cat.;* Tappan and Tennafly, *Austin;* Staten Island and Redbank, N. J., *W. H. L.;* Keyport, N. J., *R. W. Brown;* Glen Clove, *Coles.*—H. blepharioglottis, Hook.; Keyport, *Brown;* Closter, *Austin;* Secaucus, *W. H. L.*—H. lacera, R. Br.; common in all our districts; N. Y.—H. psycodes, Gray; common; Closter, *Austin;* Glen Cove, *Coles;* Chatham, N. J.; *W. H. L.*—H. fimbriata, R. Br.; "Meadows about Elizabethtown, N. J.", *Eddy in Torr. Cat.*

GOODYERA, R. Br.—G. pubescens, R. Br.; common; N. Y.

SPIRANTHES, Richard.—S. latifolia, Torr.; reported from Glen Cove, but needs confirmation.—S. cernua, Richard; common.—S. graminea, Lindl., Var. Walteri; common; Staten Island and Summit, N. J., *W. H. L.;* Closter and Morris Co., N. J., *Austin;* Train's Meadow, Newtown, L. I., *Ruger.*—S. gracilis, Bigelow; the most common form in all our districts; N. Y.—S. simplex, Gray; Tottenville, Staten Island, rare, *W. H. L.;* Keyport, quite common, *Brown;* Closter, rare, *Austin.*

LISTERA, R. Br.—L. cordata, R. Br.; probably grows in our region, though no specimen properly authenticated is at hand.—L. convallarioides, Hook.; "In the cedar swamp at New Durham," *Torr. Cat.*

ARETHUSA, Gronov.—A. bulbosa, L.; Closter, rare, *Austin;* New Lots, *Merriam;* Glen Cove, *Coles;* New Durham Swamp, formerly,

W. H. L.; "In the cedar swamp, Weehawk." *Torr. Cat.;* Keyport, common, *Brown.*

POGONIA, Juss.—**P. ophioglossoides**, Nutt.; abundant in the swamps of Long Island, New Jersey, and Westchester Co.—**P. pendula**, Lindl.; "Fort Washington, New York Island, and on the high hills of Staten Island," *Torr. Cat.;* Palisades, not rare, *Austin;* Englewood and Kingsbridge, *Bower.*—**P. verticillata**, Nutt.; Huguenot woods, Staten Island, *W. H. L.;* Jamaica, *T. F. Allen;* Tennafly, *G. I. Cook;* used to be very abundant near Closter, rather rare now, *Austin.*—**P. affinis**, Austin; used to grow near both Closter and Norwood, now exterminated, *Austin.*

CALOPOGON, R. Br.—**C. pulchellus**, R. Br.; common in the same situations with *Pogonia ophioglossoides;* Yonkers, *Pooley.*

TIPULARIA, Nutt.—**T. discolor**, Nutt.; Inwood, *W. W. Denslow;* Bergen Point and Chatham, N. J., *W. H. L.;* Big Swamp, near Madison, N. J., *Dr. Bumstead;* near Newark, *Bower;* used to grow near Closter; the patch is now exterminated, *Austin.* Probably not very rare, but difficult to be detected. I have found it in rich wet woods on ridges and hummocks where it would just escape inundation in the spring, and, though I had marked the neighborhood where it grew, had difficulty in distinguishing from the rubbish of the grove its slender neutral tinted scape and spike, which appear about the end of July. *W. H. L.*

MICROSTYLIS, Nutt.—**M. ophioglossoides**, Nutt.; New Durham Swamp, *Torr. Cat.;* Closter, rare, *Austin;* Keyport, scarce, *Brown;* Redbank, N. J., not rare, *W. H. L.;* Jamaica, *Ruger.*

LIPPARIS, Richard.—**L. liliifolia**, Richard; Harlem and Weehawken, *Torr. Cat.;* Inwood, *Denslow;* Long Island, *Coles;* Keyport, *Brown;* Closter, not rare; used to be common, partly in water, in the New Durham swamp, *Austin.*—**L. Loeselii**, Richard; Inwood, *Denslow;* Williamsbridge, *W. H. L.;* Closter, rare, *Austin.*

CORALLORRHIZA, Haller.—**C. innata**, R. Br.; Glen Cove, *Coles?*—**C. odontorrhiza**, Nutt.; Bloomingdale, *Torr. Cat.;* Inwood, *Denslow;* Closter, common, flowers in October, *Austin;* Chatham, N. J., and Staten Island, late in September, *W. H. L.*—**C. multiflora**, Nutt.; common; N. Y.

APLECTRUM, Nutt.—**A. hyemale**, Nutt.; New Jersey, *Torr. Cat.;* Westchester Co., *Mead, Le Roy;* Closter, rare, *Austin.*

CYPRIPEDIUM, L.—**C. parviflorum**, Salisb.; Palisades, rare, *Austin;* Tennafly, *G. I. Cook.*—**C. pubescens**, Willd.; New Jersey, *Torr. Cat.*—**C. spectabile**, Swartz; "In the cedar swamp near Weehawk." *Torr. Cat.;* Sparta, Sussex Co., N. J., *Austin.*—**C. acaule**, Ait.; not rare; Closter, common, *Austin;* Jamaica, *Ruger;* Keyport, *Brown;* abundant at South Amboy and on Long Island, probably found in all our districts.

Terms—*One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.*

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P. M.

AMARYLLIDACEÆ.

HYPOXYS, L.—H. erecta, L.; common; N. Y.

HÆMODORACEÆ.

ALETRIS, L.—A. farinosa, L.; New York and New Jersey, *Torr. Cat.*; Closter, common, *Austin*; Keyport, *Brown*; Jamaica; Staten Island; Chatham, N. J., etc.

IRIDACEÆ.

IRIS, L.—I. versicolar, L.; common; N. Y.—I. Virginica, L.; Closter, common, *Austin*; Hackensack meadows; Long Island, *State Flora, Miller, Coles, Ruger.*

PARDANTHUS, Ker.—P. Chinensis, Ker.; Preakness, *Ficher*; between Jamaica and Middleville, S. S. R. R., L. I., *Ruger.*

SISYRINCHIUM, L.—S. Bermudiana, L.; common; N. Y.; with white flowers, S. S. R. R., near Jamaica, *Ruger.*

DIOSCOREACEÆ.

DIOSCOREA, Plumier.—D. villosa, L.,; common; N. Y.

8. Trees and Rain.—[In Vol. III, No. 8, was a short but very interesting account of the desiccation of the Island of Santa Cruz, W. I. Mr. Merriam, the writer, has kindly sent us the following communication from the friend who was his authority for the facts. The story of the Lake of Valentia is not new but very apposite, and on account of the importance of the subject, may claim repetition even in our limited space.]

Your brief published statement concerning the diminution in the rainfall of the Island of Santa Cruz is in the main correct, save that it gives the idea of a more rapid change than has probably taken place. At my former visit, twenty-seven years ago, the desiccation had undoubtedly made some progress, but it had not been sufficient to make itself manifest in a very marked degree.

The change from fertility to barrenness, which at first must have been almost imperceptible, is no doubt taking place in an accelerating ratio. Every new plantation swallowed up by the onward march of desolation, augments the cause, and renders the arrest of the evil more and more hopeless. This movement is from the East, (the windward end of the island,) towards the West, and is now quite conspicuous. Every few years an estate, formerly green with cane fields, becoming incapable of producing further crops, has to be abandoned to the graziers, whose cattle find a meagre pasture upon it a few seasons longer. These are in turn driven off, and the land is entirely given up. Henceforward it becomes, if not quite a desert, at least a barren waste, producing only a sparse and prickly vegetation, over which a few arborescent cacti reign supreme. A narrow belt of green lines the sea shore of this region, consisting of cocoa-nut palms, the poisonous Manchineel, the sea side grape, and a few shrubs, whose natural habitat is along the high water mark; but, inland, cultivation is impossible without constant irrigation. As there are no streams upon the island, with the exception of a few rills chiefly near the western end, and the wells are failing, no means remain to force life from the unwilling soil. Some attempts were at one time made to arrest this insidious advance, but too late

to be effectual. A planter, I was told, not long since set out a thousand trees upon his estate, and lost every one. It is probable that had this remedy been universally adopted in time, there might be a more hopeful future for Santa Cruz. But the final depopulation of this beautiful island, seems now to be written indelibly among the decrees of fate.

St. Thomas, an island lying thirty miles distant, is similarly affected. This island, however, being loftier, and having scarcely any level land, seems to attract to itself a rather more liberal amount of moisture from the clouds.

About fifty miles westward of these islands, and in the same parallel, lies the large island of Porto Rico. The land here is almost wholly mountainous, the eastern ridges rising to three thousand feet. A large portion of the interior is still covered with primitive forest, a tangled tropical vegetation of vivid perennial verdure. The rainfall is abundant, and the soil yields bountiful crops of coffee and sugar, with a great variety of fruits.

The contrast between neighbouring islands so similarly situated is most striking. The sad change which has befallen the smaller ones is, without any doubt, to be ascribed to human agency alone. It is recorded of these, that in former times they were clothed with dense forests, and their oldest inhabitants remember when the rains were abundant, and the hills, and all uncultivated places, were shaded by extensive groves. The removal of the trees was certainly the cause of the present evil. The opening of the soil to the vertical sun, rapidly dries up the moisture, and prevents the rain from sinking to the roots of plants. The rainy seasons in these climates are not continuous cloudy days, but successions of sudden showers, with the sun shining hot in the intervals. Without shade upon the surface the water is rapidly exhaled, and springs and streams diminish. There is also, as many believe, an electrical action produced by the points of leaves upon the atmosphere, compelling it to yield up its moisture. However feeble may be this effect from a single tree, the myriad spears of a whole forest presented to the sky, undoubtedly do exert a marked and powerful influence. It is probably from such a combined action that the drying up of the soil from the removal of the trees,—destroying the balance of nature,—goes on with ever increasing rapidity.

An equally marked example of the effect we are considering, is seen in the small island of Curaçoa, lying in latitude 12° N., sixty miles from the coast of Venezuela. I visited this island in the year 1845, and found an almost perfect desert, where, according to the testimony of the inhabitants, had once been a garden of fertility. Abandoned plantations, the recent ruins of beautiful villas and terraced gardens, and broad arid wastes without a blade of grass, shewed how sudden and complete a destruction had fallen upon this unfortunate little island. The cause was the cutting down the trees for the export of their valuable timber. The effect followed even more rapidly than at Santa Cruz, as the island lies five degrees farther to the South, and the heat is more intense. The rains have

almost entirely ceased, and fresh water is among the luxuries. Almost within sight of Curaçoa is the coast of the Spanish Main, covered with the rankest vegetation, over which the burdened clouds shower down abundant blessings.

Still another example of the connection of such cause and effect is furnished in this same tropical regions. It is further interesting as a curious instance of the influence of *political* changes upon climate. Sir Charles Lyell, describing the Lake of Valentia in Venezuela, a broad sheet of water surrounded by a wide belt of cultivation, tells us that the *level of the lake* has fluctuated with the varying fortunes of this unhappy Spanish republic. From time to time a fierce revolution, more devastating than tropical storm, has swept over the land. In these cruel wars among brethren nothing was spared. The inhabitants were slaughtered and the land laid waste. In this burning region, on the line of the maximum temperature of the globe, nature quickly resumed her supremacy over the works of man. A riotous vegetation sprung up on every side. Tilled fields reverted to forest. The streams augmented, and the *level of the lake was raised.* Then came an interval of peace. The land was inhabited once more; the forests were removed, the streams dried, and the lake sank to its former level. Several such tides in the waters and in the affairs of men, are recorded, furnishing convincing proof, if proof is needed, of the intimate relation of atmospheric moisture to vegetable life. Humboldt, in his personal narrative, relates his visit to the lake of Valentia, and his measurement of its changes of level and coast line.

In view of these facts, what are we to expect in our own country, but the like results, less rapid perhaps, but none the less sure, from the unrelenting warfare which is carried on against our ancient forests? The thought may well startle us. How shall we arrest so fearful a fate?

FRED. HUBBARD.

Jas. S. Merriam, Esq. *New York, Jan. 2, 1873.*

9. **Mistletoe.**—In England at present, as is well-known, the mistletoe is rarely, or almost never found growing upon the oak. Indeed, I have read in some recent authority that only three oak-trees are known in all Great Britain with mistletoe upon them.

Being in England last Christmas day, and observing the mistletoe everywhere conspicuous, in company with the holly, ivy and laurel, I made inquiry, wherever I could get a chance, as to whence the supply was obtained. Some knew only that just before Christmas day, at the markets, one could get a bunch of mistletoe, holly and ivy to hung in the window, for "tuppence" or more, according to quantity and quality. I saw few people who had seen it growing; and those had only seen it upon crab-trees or old apple-trees, never upon an oak; and hardly any would believe that it could grow on an oak. Nor had they ever seen it except in the west of England. Generally, they thought that it grew only in England. At a wholesale stand in a market in Liverpool, the day after Christmas, I saw a very large bunch on a piece of an apple-tree limb, the branches of mistletoe being as much as four feet long, and the thickest part of

some branches, an inch and a half or two inches in diameter. The price of that bunch then, the day after Christmas, was five shillings sterling. The market man said he believed it came from Kidderminster; and that the market supply came from the west of England. However, I had several opportunities to inquire of well-informed business men, familiar with the imports and exports and shipping of England, and they uniformly gave me quite another account, which, in the words of one of them, as nearly as I can remember, is the following: "O yes, I know all about the mistletoe, "you know: it is a fungus, you know; a thing that grows on the "branches of trees, you know. I never saw much of it in England; "it always grows on knotty old apple-trees: never on an oak. They "tell some rubbish about oaks and Druids and the sacred plant, you "know, and believe that it is the native English thing, you know, "and, particularly among the lower classes, good to kiss the ladies "under at Christmas, you know—a sort of harmless bounce, a pious "deceit, that does very well, you know. But I've seen no end of it "in Belgium, on old orchards, apple-trees that are lumpy and don't "bear much fruit; and at Christmas time they import immense "crates of it from Belgium into England: crates of immense size—"most surprising numbers of them—and supply the whole English "market. It's just as good, you know, for there's not much more "mistletoe than Druids in England now, you know."

I learned also, that, according to general report, the mistletoe was propagated by boring holes in the bark of trees, deep enough to get at the sap, and inserting the broken berry, or the seed with its viscous covering. ISAAC H. HALL.

10. **Financial.**—Subscriptions for 1873 are now due. It would facilitiate transmission if, along with their subscription money, our friends remitted ten cents for prepayment of postage for the remainder of the year. Some have sent us double the amount necessary, viz., at the old rate of postage. We shall credit them with the excess.

11. **List of Botanists.**—We propose publishing a Directory of Botanists in the United States. Our correspondents in each State or locality would aid us by sending us the names and addresses of those known to them to be interested in the study.

12. **Orchids.**—Additional localities are: **Habenaria cristata**, R. Br., Secaucus, *Bower;* **H. blephariglottis**, Hook., Babylon, L. I., and generally along the south shore, between Babylon and Jamaica, *Merriam.* —**Pogonia verticillata**, Nutt., Woods at New Lots, L. I., *Merriam.*—**Lipparis liliifolia**, Rich., and **L. Loeselii**, Rich., shady moist hill sides back of Nyack, *Merriam.*—**Corallorrhiza odontorrhiza**, Nutt., Laurel Hill, Jamaica, L. I., *Ruger.*

Terms—One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

DEATH OF DR. TORREY.

On the evening of the 29th of January, Dr. Torrey presided at the meeting of the Club for the last time. We all noticed that he looked more infirm than usual, and the shadow of the coming event fell upon us. The next day he had an attack of pleurisy, which left him too weak to recover. He preserved, however, the clearness of his mind to the last. Not being able to meet with us on the 25th of February, he sent us a cheerful note and a botanical communication which we publish below. He died about 6 P. M., Monday, March 10th. The funeral services were performed at Dr. Hastings Church, on 42d Street, Thursday, March 13th. The members of the Club from far and near attended in a body, each wearing a sprig of *Torreya*, as an appropriate badge. Among the mourners were representatives of the Society of the Cincinnati, and of the various academic and scientific associations with which the Dr. had been identified for the greater part of the century. The pall-bearers were Dr. Parker, Dr. Delafield, Dr. Agnew, Prof. Asa Gray, Prof. Henry, Gen. Roome, President Barnard, and Mr. Albinola. The profuse offerings of flowers to mark affection for the dead were certainly never more appropriate. The body was conveyed the next day to Woodlawn Cemetery.

Dr. Torrey was in his 77th year, and from boyhood had been devoted to Science, and rendered her effective service. When a mere lad, as we have heard him relate, he corresponded with Curt Sprengel, one of the most eminent botanists of his day. His Catalogue of the Plants about New York was reported to the Lyceum, of which he was a founder, in 1817, when he was ~~nineteen~~ years old. His influence upon the development of the science of Botany in this country has been from that time to the present so large and so constant, and his intercourse with its students so extensive, so instructive and so genial, that probably every botanist in America feels that in him we have lost a scientific father and a personal friend. On another occasion a more competent hand will present the record of his contributions to Botany.

The sense of a great loss comes especially home to the members of the Club, who for the last six years have been in the habit of meeting him monthly. The social character of our reunions gave us opportunity to become acquainted not only with his learning, his sagacity, his caution, and his integrity—qualities inseparable from a high scientific standing; but also with his personal bearing, his enthusiasm, his ingenuosness, his friendliness, his geniality—charms which suffered no impair by the touch of time*. To be interested in Botany was a recommendation to Dr. Torrey: the person shared in his love for the science. This was touchingly shown in the tenderness with which he always recalled the departed, and to this trait, no doubt, was partly due his wide influence. The cordiality with

* On his return from Florida last Spring, the Dr. was rallied upon going to seek the Fountain of Youth, when he retorted, "Give me the Fountain of Old-age. The longer I live the more I enjoy myself." There is nothing finer in the *De Senectute*.

which he extended to us the use of his library and herbarium, the kindly interest with which he entered into our inquiries, assisted us with his advice, and bore us in mind when he was absent in the South or West, and, in a word, the habit we had of referring to him in all our botanical interests, make us feel almost that with his the life of the Club has departed.

That this feeling exists is perhaps the most genuine homage that could be paid to the worth of our late President. Against it, however, it is our duty to strive. It was certainly not for want of social opportunities that a man so much in request gave up his evenings to us, but to foster the interests of his favorite science, to which the organization of the Club gave promise of contributing. And, on our part, when we adopted his name in his lifetime, the proposer of that title certainly, and probably all of us wished to convey to him the assurance that it was a name that we "would not willingly let die," but would endeavor to honor in efforts for the advancement of the study of Botany in this vicinity, and even more widely, if in any way we should be able. In fact we almost promised this in so many words the last time he met with us. It devolves upon us, likewise, as the only organization in this community especially devoted to this science, to watch over the interests of the Herbarium, in which we have had our being, and whose fate was a constant source of anxiety to its founder. The sense of these duties, it is believed, will carry the Club forward.

14. Dr. Torrey's last communication to the Club.—[Dr. Torrey not being able to meet with the Club, Feb. 25th, sent the following note to the temporary chairman.]

The day after the last meeting of the Club, I was attacked with Pleurisy. This, with very active treatment for several days, was cured, so that I suffered no more pain; but I was left so extremely weak, that ever since I have spent most of my time in bed. It is about a month that I have not been allowed to go down stairs. It is nearly fifty years since I had a sickness of more than a few days duration. My physician thinks that I am now slowly mending.

As *I* am not the *Botanical Club,* it seemed best that a regular meeting should be held, although I shall not be able to join your company. Tell the members how much I regret this deprivation; but I shall be with you in fraternal sympathy, and hope you will have a good time. I send, as my representative, the picture painted by my niece, Mrs. Daniell, of the Herbarium with your *chairman* sitting at his work! * * * *

The following you can read to the Club and then use it for the Bulletin. JOHN TORREY.

COLUMBIA COLLEGE, Feb. 25th, 1873.

15. On a new species of Phyllanthus.—In the Pacific R. R. Expedition of the late Gen. Whipple, in 1853-54, the botanist, Dr. G. M. Bigelow, collected, on the sandy banks of the Canadian River, a low annual plant having all the characters of a Phyllanthus, but differing from all the described species of that numerous genus (and indeed from the whole order of Euphorbiaceæ) in the position

of the ovules. Instead of being suspended from the summit of the cells they seemed, in the youngest state, to be fixed to the lower part of the cell, and to be somewhat ascending. The plant is not described in the Botanical Report of the Expedition, but was laid aside for future study and not taken up again until lately. In order to obtain the opinion of the highest authority in Euphorbiaceæ, my friend Dr. Gray sent a specimen of the plant to Dr. J. Müller, of Geneva, the author of several works on the Natural Order and of the elaborate monograph on the same in the Prodromus of De Candolle. His answer is contained in the accompanying extract from a letter to Dr. Gray, dated January 7th, 1873.

"The fragment of the new Arkansas Phyllanthus is curious as "an intermediate form between hanging and ascending ovules. "The ovules appear ascending because their micropylar part is "more elongated than usual, or the rhapheal part shorter compared "with the micropylar (the rhaphe is distinct), but the whole ovule "is fixed, in the young state, much nearer the middle than the "base. All this does not change the character of the order quoad "direction of micropyle and radicula, but it requires a modification "of the terms upon form and attachment of ovules: *Ovules hang-* "*ing and anatropal or laterally fixed and hemianatropal.*"

16.—New or Little-known Ferns from the United States.—No. I.

1. Asplenium Bradleyi, n.sp.—Mature plant 8-10 inches high; root-stock short, covered with narrow acuminate fuscous-black scales; stipes tufted, slender, ebeneous, as in the lower half or two thirds of the rachis; fronds membranaceous, oblong-lanceolate, varying to linear-oblong, the largest ones 5-7 inches long, and 1½-2 broad, pinnate; pinnæ rather numerous (8-12 pairs), the lower ones more distant than the median ones, and of similar size, all short-stalked, oblong-ovate, obtuse or acutish, more or less incised, in the largest pinnatifid with oblong lobes which are toothed at the apex, in the smallest deltoid-ovate, slightly toothed; fruit-dots short, near the costules; indusium delicate.—Top of Walden's Ridge, Cumberland, Mts, near Coal Creek, East Tennessee, *Prof. F. H. Bradley.* Professor Bradley has favored me with a large suite of specimens of this Fern, which in some of its more compound forms is related to *A. montanum*, from which it differs in its larger size, more membranaceous texture, narrower outline of the fronds, and shorter stalked pinnæ. Some of the denser specimens also resemble somewhat *A. lanceolatum* of Europe.

2. Pellæa Ornithopus, Hooker.—Mr. Thomas Moore has lately in the *Gardeners' Chronicle* described a form of this species under the name of *Platyloma brachypterum.* This form is described as being only bi-pinnate, very strict and dense in habit, and with longer pinnules than are usually seen in *P. Ornithopus.* The very large series of specimens sent me in 1869 by Mr. Bolander, and lately again, to be distributed in Kellogg and Harford's collection (as No. 1169), enable me to show a complete graduation into the ordinary form of P. Ornithopus, of which, however, this plant may be recognized as a variety under Mr. Moore's name, *brachypterum.*

3. Pellæa Wrightiana, Hooker.—Mr. Baker has, I think, very properly united this with *P.longimucronata*, but one of Sir. Wm. Hooker's names must be kept for the species, for there is a *Pellæa mucronata* of Fée, a simple pinnate species from Mexico, which antedates the same name as applied to the New Mexican species in the Botany of the Mexican Boundary. Mr. T. S. Brandegee, of Canon City, Colorado, has recently sent excellent specimens of *P. Wrightiana.*

4. Notholæna Newberryi, n. sp.—Stems tufted, 3-5 inches long, slender, nearly black, when young whitish-tomentose, at length nearly smooth; fronds as long as the stipes, lanceolate-oblong, covered with a dense whitish tomentum of slender entangled hairs, most densely beneath, tri-quadripinnate; ultimate pinnules roundish-obovate, very closely placed, $\frac{1}{8}$-$\frac{1}{2}$ a line broad, entire or slightly crenate; sporangia rather large, at length apparent in the mass of tomentum.—San Diego, California, *Dr. Newberry, Prof. Wood.* Abundant in the Temescal range, Southern Cal., *Prof Brewer.* This Fern I have had for many years, and at first supposed it to be *Cheilanthes tomentosa*, then a whiter form of *Ch. Eatoni*, and then a new species of Cheilanthes. On careful examination, however, I find no trace of involucre, even on fruiting specimens. The plant very much resembles small specimens of the Ferns just referred to, but is whiter, and much more heavily covered with tomentum. In Notholæna it comes nearest to *N. mollis*, Kze, from South America, but is much more delicate, and differs in many other important respects. D. C. Eaton.

New Haven, Feb. 22, 1873.

18. Mistletoe.—I was interested in Mr. Hall's article on the mistletoe. The American species of this plant, *Phoradendron flavescens*, grows also on apple-trees. I have not met with it north of New Jersey, and have seen it there only on the *Nyssa multiflora.* But in Bourbon County, Kentucky, I have seen it on the oak (*Q. macrocarpon*) *Gleditschia*, *Æsculus glabra*, and the apple, also on *Robinia.* I have been taught that its place was on the oak; again, on ancient pines; imagine then my surprise at this abnormal conduct! O. R. Willis.

19. Apocynum androsæmifolium.—This plant grows in great abundance, in my neighborhood, in neglected fence corners, and upon the edges of copses. It flowers every year profusely, but I have never yet seen it in fruit, nor has my gardener, an intelligent and competent botanist, who has carefully searched for a fruiting specimen for twenty years. A. C. Greene.

Frostburg, Md.

***Terms**—One dollar for one copy; five dollars for seven; and half a dollar for every additional copy per annum.*

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

20. Oaks and Mistletoe.—The interesting note of our fellow-member, Mr. Hall, upon the present rarity of mistletoe on the English oaks, and its frequent occurrence upon the English apple trees, leads me to mention here the very frequent, nay, almost constant occurrence of huge bunches of *Phoradendron* (the American representative of mistletoe) upon the oaks of California. Throughout the plain and lower hills of that State, scattered oaks, of several species, are the most abundant tree, and their graceful forms, as well as their vivid green, seen in contrast with the usual arid vegetation of August, give a peculiar and needed charm to the summer landscape. It was my privilege to journey a few weeks last summer in that State with our lamented friend and master, Dr. Torrey, and his acute and practised eye was quick to notice that, especially in the Napa and Sonoma valleys, nearly every large oak that we passed bore bunches of mistletoe, many of them of great size and age. The oaks on which it was observed were, *Quercus Hindsii*, Benth; *Q. Kelloggii*, Newb.; *Q. chrysolepis*, Liebm.; and probably others. Whether it is there confined to the genus *Quercus* I cannot say. It was, probably, one of the varieties of *Phorodendron flavescens* (Pursh.) Nutt., but our hurried stage-coach travel did not permit us to secure specimens. East of the Mississippi the *Phorodendron* is known to cultivate the society of a considerable variety of trees.

JOHN H. REDFIELD.

21. Orchids.—With regard to the list of orchids in the January (1873) BULLETIN, a note or two may be worth while. *Liparis liliifolia*, Rich., I have found in the woods near Greenwood Cemetery; perhaps twenty plants. *Liparis Loeselii*, Rich., I have found in the very midst of the bog on Weehawken heights, growing right in the midst of the wet, black mud, and almost in the water itself. It was healthy and large, and had the remains of two years' previous growth. I have also found it on Staten Island, in the gravelly bank of a railroad cutting; very vigorous also, and having the remains of two years' growth. I found it also on a gravelly bank by the roadside in Tarrytown, very vigorous and with the remains of one year's previous growth. I have several times found them in the Western part of the State, the *L. liliifolia* always in the woods, but the *L. Loeselii* always on the side of a gravelly or sandy bank, about half way up on the rough and uncovered surface. Only in the case of the Weehawken bog have I found it in a wet place. I cannot believe that the water is the most natural place for either species. *Cypripedium acaule*, Ait., besides the localities mentioned in the BULLETIN, I have seen frequently on Staten Island, and occasionally up through Westchester County and in Connecticut. *C. pubescens*, Wild., I have also seen occasionally in Westchester County and in Connecticut; but I have never, in this region, seen a *C. parviflorum*, Salisb.; nor in this region have I seen any such places as that seems to love so well in Central New York. I do not remember ever to have been botanizing in the Jersey Pines, in the proper season, without running across *Habenaria tridentata*, Hook., in the swamps; nor in the bogs of Westchester County without seeing *H. lacera*, R. Br. *H.*

orbiculata, Torr., I do not remember to have seen more than once in this region, and that extra-limital, near Cornwall, on the Hudson. *H. Hookeri* seems to be not infrequent. It may have escaped general notice that *H. orbiculata* dries white, while *H. Hookeri* turns quite black in drying. *H. ciliaris*, R. Br., I have seen in the Jersey marshes, and also down in the Pines.

The difference of distribution of the orchids in our regions from that in Central and Western New York is worth noticing. *Orchis spectabilis*, L., in Cayuga, Monroe, and Oneida Counties, and once in Onondaga County, I have seen in beds, hundreds of plants together; here not very commonly, one or two plants alone. *Habenaria virescens*, Spreng., along the outlets of the Western New York lakes, when found at all, is found in large beds, sometimes extending several rods along the shore in the underbrush. *H. Hookeri*, nowhere there uncommon, I have seen fairly covering a wooded hillside with its large leaves; thousands of plants being together near the edge of Skeneateles Lake. *H. orbiculata* is frequently met with in Central New York; *H. cristata*, R. Br., and *H. ciliaris* almost or quite never; *H. blephariglottis*, Hook., not infrequently; *H. lacera*, R. Br., much less commonly than here; *H. psycodes*, Gray, in the greatest abundance in many places. *Goodyera repens*, R. Br., is there as common as *G. pubescens*, R. Br., and both in all the cold woods. *Spiranthes gracilis*, Bigelow, is there the least common form of the genus; *S. cernua*, Rich., the commonest. *Listera cordata*, R. Br., grows in all the cold bogs, almost always in company with *Corallorrhiza innata*, R. Br., while *L. convallarioides*, Hook., is never found there. *Arethusa bulbosa* is much rarer there than here. *Pogonia ophioglossoides*, Nutt., and *Calopogon pulchellus*, R. Br., strange to say, almost never occur there. I never saw either there myself, but have heard of their being found there once or twice. *Pogonia pendula*, Lindl., is quite rare, but *P. verticillata*, Nutt., quite common, and nearly always flowers finely. *Microstylis monophyllus*, Lindl., is not uncommon; nearly or quite as common as *M. ophioglossoides*, Nutt. *Aplectrum hyemale*, Nutt., is much more common there than here; and I have twice found it in a close bed covering two or three square yards. I once found two leaves with their bulbs, both starting from the same bulb of the previous year, on opposite sides; and I have found a succession of six bulb-remains, one after another, attached to the thriving bulb and leaf. *Corrallorrhiza multiflora*, Nutt., and *C. odontorrhiza* I have found in beds of nearly two hundred plants, growing under hemlocks, among the rotting remains of hemlock logs buried lightly in alluvial sand beside a stream. *C. innata* grows, as I have above intimated, in most of the cold bogs. *Cypripedium parviflorum* is common in Oneida County; rare elsewhere. *C. pubescens* and *C. spectabile*, Swartz, are abundant in proper localities. *C. acaule*, Ait., is quite rare there.

I. H. HALL.

22. Watkins Glen.—[Having been applied to for information as to the best time for a botanical visit to Watkins Glen, we wrote

to Prof. A. N. Prentiss, of Cornell University, who has kindly responded as follows:]

Perhaps the last week in June would be the most satisfactory time for observing the floral character of Watkins Glen. I have myself visited the place but once, and speak of it from my acquaintance with similar localities, rather than from personal observation. The Southern extremity of all the lakes in Central New York is surrounded by hills from 400 to 800 or more feet in height, in which deep ravines have been worn by the descending streams. These ravines are characterized by a succession of waterfalls and cascades, rocky ledges and high cliffs. In places they are extremely narrow, but again widen out into broad amphitheatres. The sides are sometimes sloping and covered with a peculiarly luxuriant vegetation; at other times they rise into perpendicular walls 200 to nearly 400 feet in height. Nooks and recesses abound where the sun never shines, and where the air is cool and damp the whole summer through. In such places a few plants are found which properly belong to a more northern region. They are doubtless the lingering representatives of the flora which characterized this latitude during the later portion of the glacial epoch. Perhaps the most interesting of these plants is the pretty little *Primula Mistassinica*, Mchx., which abounds in the ravines at the head of Crooked and Cayuga Lakes, and probably occurs at Watkins. A few individuals of this species have for ages maintained a foot-hold in those glens, quite separated from their congeners, which for the most part abound from Labrador to the Rocky Mountains and northward to the Arctic circle. *Pinguicula vulgaris*, L., usually accompanies Primula. *Sisymbrium canescens*, Nutt., abounds at Watkins, there being only one other known station in the State. The floral character of the Fall Creek ravine at Ithaca, known as the Gorge, is quite as peculiar and interesting as that of the Glen at Watkins.

23. Destruction of Spruce Trees.—In the *Tribune* of April 1st, is a notice of Mr. Verplanck Colvin's Report to the New York Legislature on the Adirondack Wilderness. Mr. Colvin is reported to say: "During this day's march through the forest [in the vicinity of Cedar River] we remarked with wonder, that almost all the majestic spruce timber was either fallen and decaying or standing dead, so penetrated with dry rot and decay as to be crumbling to pieces. The same timber, only a few years since, was apparently sound and valuable. Now the lands . . . will probably not command ten cents an acre. This sudden decay of the forest is a most important matter to the owners of timber lands thereabouts, and deserves the attention of the botanist." This observation was made last August. Mr. Colvin does not state whether the decay was common to both the White and the Black Spruce, or was confined to the latter.

In 1871, Mrs. L. A. Millington, of Glens Falls, discovered that a minute Arceuthobium, a plant of the Mistletoe family, was destroying the Black Spruce in the Adirondacks and adjacent country.

Her observations on the habits of the plant including the manner of its dissemination may be found in our pages (Vol. II. Nos. 11 and 12., Vol. III. No. 12.), and notes on the subject by Drs. Gray and Parry in the *American Naturalist* for 1872. Mr. Chas. H. Peck, of Albany, also discovered the plant, but subsequently to Mrs. M., and gave an account of it in a *Report* quoted in our BULLETIN (Vol. III. No. 4.). The parasite would seem to have become unusually abundant of late years. It is very important to learn its anterior history.

24. Seasonable Hints.—Watch the various *Willows;* gather the catkins of both sorts, and mark the bushes so as to get the leaves later in the season. As the willow is dicœcious, every variety should be represented by four pieces, staminate and pistillate catkins, and corresponding twigs with leaves well developed and if possible with stipules.—*Carices* are now appearing, and are much needed for the Catalogue.—Get some pollen of *Calla* (Richardia Æthiopica) and examine the contents of the pollen granules, burst or crushed in water, to see the movements of the fovillæ.

SMILACEÆ.

SMILAX, Tourn.—**S. rotundifolia,** L.; common; N. Y.: var. **quadangularis;** Staten Island, *Allen,*—**S. glauca,** Walt.; not uncommon; New Jersey, Long Island, Staten Island, &c. **S. herbacea,** L.; common; N. Y.: var. **pulverulenta;** flats east of Greenpoint, *T. F. A. & W. H. L.*

LILIACEÆ.

TRILLIUM, L.—**T. erectum,** L.; N. J. *Torr. Cat.*; near Norwood and Tappan, *Austin;* Preakness, *Fischer;* Glen Cove, *Coles;* Lawrenceville, *Ruger,* Westchester Co., *Pooley.* **T. cernuum,** L.; Closter, common, *Austin;* Preakness, *Fischer;* N. R. R. of N. J., opposite Hudson City, *Ruger;* Westchester Co., *Fischer;* Long Island, Newtown, common, *Ruger;* Glen Cove, *Coles.*—**T. erythrocarpum,** Mchx.; New Durham Swamp, *Torr. Cat.;* Long Island, *Coles.*

MEDEOLA, Gronov.—**M. Virginica,** L.; common; N. Y.

MELANTHIUM, Gronov., L.—**M. Virginicum,** L.; not uncommon in low grounds; Hackensack Flats; Staten Island; Keyport, *Brown;* Yonkers, *Pooley;* Closter, *Austin.* A variety with much broader leaves, and, I believe, otherwise different, occurs in upland woods and thickets in Orange Co., *Austin.*

VERATRUM, Tourn.—**V. viride,** Ait.; common; N. Y.

HELONIAS, L.—**H. bullata,** L.; near Freehold, Monmouth Co., N. J., *Lockwood.* Vid. Vol. II., § 38.

Terms—*One dollar for one copy; five dollars for seven: and half a dollar for every additional copy per annum.*

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

CHAMÆLIRIUM, Wild.—**C. luteum**, Gray; not uncommon in New Jersey, and on Staten Island, and probably in Westchester Co., though we have no report from there or Long Island; Kingsbridge, N. Y. Island, *W. H. L.* Eminently polygamous, *Austin.*

UVULARIA, L.—**U. perfoliata**, L.; common; N. Y.—**U. sessilifolia**, L.; common; N. Y.

SMILACINA, Desf.—**S. racemosa**, Desf.; common; N. Y.—**S. stellata**, Desf.; south shore of Staten Island, *W. H. L.;* Snake Hill, N. J., *Le Roy;* near Canarsie, *Ruger;* Zinc mines, Sussex Co., N. J., Austin. It is interesting to find this inland plant clinging to the moist thickets by the sea shore. Torrey's Catalogue reports it in wet meadows, but in the State Flora it is said not to grow below the Highlands. The wet meadows perhaps were in New Jersey, but it is not now reported from there, excepting Snake Hill.—**S. trifolia**, Desf.; Orange Co., *Austin;* Westchester Co.? *Le Roy, Pooley.*—**S. bifolia**, Ker.; most common; N. Y.

POLYGONATUM, Tourn.—**P. biflorum**, Ell.; common; N. Y.—**P. giganteum**, Dietrich; "On the Island of New York," *Le Conte in Torr. Cat.; Le Roy;* Parsmus, Bergen Co., and near Troy, Morris Co., N. J. On the Palisades I have found *S. biflora* almost like this. *Austin.*

ASPARAGUS, L.—**A. officinalis**, L.; salt meadows &c., not uncommon.

§ **Asplenium ebnoides**, R. R. Scott.—A new locality for this very rare species has been found by Miss Julia S. Tutwiler near Havana, in Central Alabama. We infer from her communication that the number of individuals is greater than where originally found on the Schuylkill. As every fact connected with this singular and disputed form will interest botanists in general and fernists in particular, we extract freely from Miss Tutwiler's letter, which is beside brimful of botanical spirit:

"I found it in a little magic spot, a Fairy-glen, about five miles from my home. You must know that we live in Central Alabama, on the Tertiary, in a hilly poor country of sand and red clay, with long red gullies washed everywhere into the hills, but no rocks except pudding-stones. One day I happened to hear of beautiful mossy crags and cliffs some miles away, and went to seek them. To my delight and surprise, I found a little narrow glen, which seemed to have been picked up somewhere in the Blue Ridge and carried bodily through the air to be dropped down in this odd place. The sides were precipitous crags of sandstone covered with beautiful ferns, mosses and vines; a rapid brook rushed through the bottom of the glen in a thousand little wimples. There seemed a separate soil and climate to this little freak of nature. I found there five ferns which I had never seen in any other spot around us; and the real mountain saxifrage, which I had not met since I had seen it in the Catskills. The ferns were: a Polypodium [Phegopteris?]; Asplenium ebeneum and Trichomanes; and A. ebenoides; Cheilanthes vestita; and the real Walking-fern [Camptosorus], which is not, I

think, put down in the books for so low a latitude. There may be many other plants there not found elsewhere around us. I could only go occasionally, at long intervals, and, therefore, no doubt, missed finding many. I shall never forget the delight with which I recognized the Walking-fern. I had never seen it before except in books, and had hoped to obtain a specimen by exchange."

According to the Manual, a single plant of this fern was found growing with Camptosorus and Asplenium ebeneum on limestone cliffs on the Schuylkill, near Philadelphia, by R. R. Scott. This was in 1861. Prof. Eaton informs us that Mr. Frederic Bourquin obtained four more plants in the same place, Oct. 4, 1867. It is to be noticed that Camptosorus and Aspenium ebeneum likewise grow in Miss Tutwiler's locality. In the same passage of the Manual, Prof. Eaton mentions the Rev. M. G. Berkeley's opinion that it is a hybrid between the two mentioned ferns. Whether this is so, it is to be hoped that Prof. Eaton will be enabled to decide by means of a fuller series of specimens from Alabama. Mr. Berkeley found the spores in the single imperfect specimen communicated to him more or less abortive, and draws an argument from that circumstance. As Camptosorus and Asplenium ebeneum are frequently found together, if they hybridize, it might be expected that more frequent examples would occur. On the other hand, the peculiarity of the Alabama locality, like that of Scolopendrium in Western New York, would suggest a relic of an earlier geological age.

§ **26. Viola Cucculata,** Ait.—We picked up in the woods on Bergen Point, a day or two since, a monstrous form of this most common violet. Of the two specimens gathered, one had four petals, and the other five, but each had two spurs. The front petal of the one with five was without a spur, but in both cases it was the base of the petals next to the anterior one, or where it should have been, that was spurred, each spur containing the crested filaments of two stamens. As the two specimens gathered were some distance apart, we concluded that the monstrosity was not rare. The shades of evening put an end to our search for more. We recommend others, however, to keep the subject in mind at this season when violets abound. It seems worthy of study. We may say, while on the subject, that the pollen tubes in the Violaceæ may easily be found in the neck of the style.

§ **27. New or Little-known Ferns from the United States.—No. 2.**

5. Notholæna Cretacea, Liebmann.—"Rootstock oblique, short, cæspitose, covered with rigid lanceolate scales having a lacerate membranous margin; fronds coriaceous, covered above sparingly, beneath most densely, with a subsulphureous waxy powder; stalk 1–2 inches long, ebeneous, shining; lamina 2–3 inches long, quinquangular-cordate, twice—at the base thrice—pinnatifid; primary segments opposite, spreading, lowest ones short stalked, unequally deltoid-ovate, upper ones sessile, oblong, obtuse, pinnately parted; secondary segments oblong, obtuse, lower ones pinnately parted, those on the inferior side enlarged, ovate-lanceolate; ultimate divisions oblong, obtuse, slightly crenulate; veins immersed; sori of a

few blackish sporangia forming an intramarginal line, immersed in the waxy mass; margin [of the segments] very narrow, slightly scarious."—*Mettenius, Cheilanthes, p.* 21. This species is united with *N. candida* by Hooker, though with much hesitation, and by Mr. Baker both species are referred to *N. sulphurea*, J. Smith, a name founded on the old *Pteris sulphurea*, Cavanilles. What name this fern will eventually bear I cannot now determine. The name of *N. Borrigiana* was doubtfully used for it in the first edition of Mann's catalogue, referring to *Cheilanthes Borrigiana*, Reichenbach, but I now think the description of *N. cretacea*, above translated from Dr. Mettenius, comes nearer to it. I have seen no authentic specimens of either *N. cretacea*, *Liebm.*, *Pteris sulphurea*, Cav. *P. lutea*, or *P. aurantiaca*, Cav. Should it prove to be either of these last, one of Cavanilles' specific names must be adopted. It is assuredly distinct from *N. candida*, Hook., a name based on *Cheilanthes candida*, Martens and Galeotti. *N. candida* is Mr. Wright's New Mexican 820 and 2,124, and *N. cretacea* his 821. Neither species has been sent from California, but the Californian *Gymnogramme triangularis*, which has a considerable resemblance to the present fern, is sometimes mistaken for it, and *vice versa*.

6. Aspidium unitum, *Mettenius*, in Annales Mus. Lugd.-Batavorum, I., p. 230, *var.* GLABRUM, *Mett. l.c.*, has just been found near Enterprise, Florida, by Mr. C. E. Faxon, of Cambridge, Mass. The fronds grow from a very long and slender, nearly naked, black, creeping rhizoma, are one or two feet high, and pinnate with many pairs of narrow linear pinnæ serrately lobed about half-way to the midrib. The lowest pair of veinlets unite near the midrib, and send out a solitary veinlet to the sinus, where also the second pair of veinlets reach the margin. The fruit-dots are very small, and are placed close to the margin, forming an almost continuous border. The texture is somewhat rigid, and the plant is not closely related to any other species of the genus yet found in the United States, its nearest ally being *A. patens*. It is a well-known fern of the West Indies, and is No. 1,100 of Mr. Wright's Cuban collection.

*** Mr. John Robinson, of Salem, Mass., has just issued a new Check-list of the Ferns of the United States and British America, both in pamphlet form, printed on alternate pages, for convenience in cutting out labels, and on thin folio post, a single sheet, for marking desiderata, etc. The list, which is the best hitherto published, preserves the numbers used in Mann's Catalogue, and gives one hundred and twenty-six species and twelve varieties. Our well-known *Aspidium acrostichoides*, so available for winter decorations, is happily *christened* CHRISTMAS FERN—a name which I certainly hope will be generally adopted. D. C. EATON.

§ **28. Botanical Morphology.**—In the *American Naturalist* for May, Prof. T. D. Biscoe contributes a study of the winter fronds of Duckweed (Spirodela), which is full of instruction for the minute dissections and investigations which lie at the very foundation of botanical science. Many causes have led botanists in America to give their attention more particularly to the systematic part of

the science; but this field has been so well worked, and is so full of workers, that there is little room for any new comer to add much to our knowledge in this department, while the other divisions of the science offer unlimited range for delightful and profitable investigation. Whether taking his healthful walk in the country after rarer plants, or confined to the weeds of his door-yard, the student of vegetable biology can always find subjects of interest. If a few more of our able investigators would disclose to outsiders their methods of research, so as to set the current of study in that direction, they would be doing good service. We heartily thank Prof. Biscoe for his example of honestly thorough work in a somewhat neglected field.

§ 29. **Publications.**—The *Naturalist* for May is unusually well supplied with botanical matter. Prof. Biscoe's article on Duck-weed we have elsewhere noticed. Prof. Watson describes some new plants of Arizona.—*Silliman's Journal* contains, with other notes of interest, obituary notices of Curtis, Mohl, and others. A biographical sketch of Dr. Torrey is promised for the June number.—*Archives of Science*, Vol. I., No. 6, continues the list of flowering plants of Vermont, by Prof. Perkins, and of the Cryptogams, by Charles C. Frost.—The *Popular Science Monthly* for May has an interesting article on the freezing of plants and animals, from the German of Fr. Mohr.—In the *Transactions of the Wisconsin Academy*, 1870–72, Dr. Lapham discusses the classification of plants in the light of Geology.

§ 30. **Motion of Fovillæ** (*Pollen contents*).—We extract the following paragraph from the note of a friend: "I was recently examining the pollen of the common Calla, so called, (*Richardia Æthiopica*). The granules are unusually large, and are admirable for study in several respects. They show, with unusual distinctness, the double character of the coat. The fovillæ shrink away to the centre, leaving the margin all around the granule transparent. I had placed some of the pollen upon the slide with a drop of water. Soon I found some of the granules burst, and the contents poured out like meal from a sack. But in a moment it was 'all alive.' Each particle of the fovillæ went whirling around and twisting away, now on its own hook, now bowing to its neighbor, and aggregating with others similar. The whole field was covered with a cloud of busy particles, moving about with a sort of infusorial motion, but much slower. This lasted for an hour or two. If the granules do not burst by the absorption of water, they may be crushed in the compressorium, or simply with a knife-blade or similar instrument."

Terms—One dollar for one copy; five dollars for seven; and half a dollar for every additional copy per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

At the regular meeting of the Torrey Botanical Club held April 29th, 1873, the following resolutions were presented by the committee appointed for that purpose, and unanimously adopted:

WHEREAS: It has pleased Divine Providence to remove from us by death our honored head, Dr. JOHN TORREY,

Resolved: That while deeply grieving the common loss of all the promoters of his favorite science, we mourn him who in a peculiar manner was our founder, father and friend.

Resolved: That we cherish and prize his memory, inseparably interwoven not only with American Botany—in which he was co-laborer with the earlier pioneers, teacher and helper of nearly all the later investigators, and a leader in the original researches, public and private, of his State and country—but with the growth and coming to maturity of Botanical Science itself. We remember him with affectionate veneration as the occupant of chairs of high esteem and usefulness in several of our institutions of learning; as the incumbent from its establishment of an office of great personal trust under the General Government, in another exacting department of science; as a diligent, honest and humble student of nature; and, above all, as adorned with rare Christian excellence and grace, growing in knowledge and virtue fuller and riper to the last; and departing in a good old age, full of years and content.

Resolved: That we recognize it as our duty and privilege to imitate his excellent and alluring example, to use our utmost effort to promote a living interest in, and provide for the continuance and progress of local and general botanical investigation.

Resolved: That these resolutions be entered upon the minutes of the Club, and that a copy thereof be presented to the family of the deceased.

GEO. THURBER,
WM. H. LEGGETT, } *Committee.*
ISAAC H. HALL,

§ 31—**Fertilization of Asarum Canadense.**—In the *Hortus Cliffortianus*, one of the earliest works of Linnæus, published in 1737, occurs the following passage in reference to *Asarum Europæum*: "Stamina ante pubescentiam reflexa a pistillo procumbunt, at instante copula eriguntur prius mares alterni sex, uxori communi approximantur, genitalem farinam efflant; absoluta eorum venere et alterni reliqui sex mariti arcte feminam erecti comprimunt et suum pulverem effundunt."

I have found no reference to this curious statement in any later works, and have sought for any record of similar behaviour in our own *Asarum Canadense*. A small patch of the latter plant, established in my garden, has enabled me to watch the progress of the anthesis of its flowers. As soon as the calyx lobes open, the twelve stamens are seen in beautiful symmetry, bent backwards and downwards from the stigma. In this position they all remain for a period varying from 12 to 36 hours, when one or more of the alternate anthers bursts its turgid cells, while its curved filament begins to straighten, and slowly the stamen arises until the fluke-

shaped anther reaches its place in the *sinus* between the lobes of the compound stigma. This movement is soon followed by that of the remaining alternate stamens until all the six recesses of the stigma are occupied. The rise of the stamens is not rapid or simultaneous, nor does any particular order seem to prevail as regards the individual stamens of this set. The interval between the erection of the first and last of the six seems to vary from 8 to 30 hours. In nearly every instance, the anther cells burst as soon as, or before the upward movement begins.

The last stamen of the first set of six now having arisen, an interval elapses varying from ten to nineteen hours, when the remaining alternate stamens begin in like manner to open and slowly arise in succession, and the anthers of these come to rest in contact with the projecting lobes of the stigma. The stamens of this series are slightly shorter than the others, and have sometimes been called the external ones. The interval of time between the first and last of this series is usually not more than twelve hours. The stamens, having now all reached their new position, present a view not less symmetrical than their first appearance, the projecting horns, or filaments, produced above the anthers being all bent forwards towards the centre of the stigma.

Under the ideas which formerly prevailed upon the subject of self-fertilization of flowers, the statement of Linnæus, though needing qualification, is so illustrative that Darwin ought certainly to have given it poetic diction in the "Loves of the Plants." But when we look for special adaptation of parts for the office assigned by Linnæus, we find the anthers of both series of stamens *not introrse*, but extrorse—that is, opening outwards and downwards, directly *from* the stigma. Moreover, in almost all cases, the bursting of the cell and the protrusion of the pollen is fully completed before the stamen reaches its erect position. By the time, however, that the anthers of the first series have reached their places *between* the lobes of the stigma, they have become so swollen and so covered with pollen that a few grains almost inevitably come into contact with the stigmatic surfaces. But while slowly ascending to this position, and after reaching it, they certainly are so placed that the visit of an insect could hardly fail to carry away much more of the pollen than can reach the stigma by anther contact. Yet, the flower of this plant is so near the ground, and so often hidden, in fact, by dead leaves, that flying insects could hardly reach it; nor have I detected any visits from these, or from insects of other habits. But I trust that what I have here recorded will lead to further observation and research on this and kindred points. JOHN H. REDFIELD.

PHILADELPHIA, *May* 22, 1873.

§ 32. **Party-colored Iris.**—I saw, yesterday, a curious specimen of the ordinary Iris of cultivation (*Iris Germanica*). The colors—blue and white—were exactly divided upon it. The owner said that his white flowers grew on one side of his garden and the blue ones on the other, and they had never crossed before. Is not this

the result of insect agency? You will notice that each petal or sepal that is colored is divided into two tints by the mid-rib.

PROVIDENCE, *June* 5th. W. W. BAILEY.

§ 33. **Apocynum—No. 5.**—I hope some of those who meet with *A. androsæmifolium* this summer will make a microscopical examination of the buds to determine, if possible, the origin of the glands. Schleiden, in his *Botanik*, 1849, has already pointed out the true stigmatic portion of the style, of which he gives a drawing, and also of the glands, *p.* 494. He does not, however, seem to recognize the dual nature of the latter. In his view the stamen is attached to the style by a secretion of viscine from a tuft of hairs at the top of the filament, and, if I rightly apprehend him, the diaphragm is but the extension of the epidermis of the upper part of the style, upon which epidermis the gland lies, so that he recognizes the gland as distinct from the styles, and, indeed, supposes that, in Asclepiadaceæ, the glands originally pertained to the anthers, *ibid.* It will thus be seen that his observations in part anticipate my own. I did not meet with his notice of this plant till after I had published my notes on the same subject.

Schleiden also recognizes that the flower cannot fertilize itself, though he seems not to have known the *modus operandi* Dr. Darwin, in the Botanic Garden, a work which might almost be called a necessary introduction to the writings of his distinguished grandson, gives an outside report of the manner in which the anthers entrap flies, *Vol. II., p.* 241, as does also Rafinesque in his Medical Botany. I understand that Mr. C. F. Wheeler of Hubbardston, Mich., was fortunate enough last summer frequently to find insects, including some *Lepidoptera*, entrapped by this plant. W. H. L.

§ 34. **New Localities.**—Last spring we found the Trailing Arbutus (**Epigæa repens**) in the wood bordering the southern shore of the mouth of the Croton River, being the first specimens found in this region. DR. C. J. FISHER.

SING SING.

Some years ago Prof. Thurber found **Fedia olitoria**, Vahl, at St. Ronan's Well, near Flushing.—Mr. Miller discovered last year at Wading River, in a barley field, a patch of *Matricaria inodora*, L.—I have found this season **Ranunculus multifidus**, Pursh with **Amianthium**, west of Hackensack, and **Cynthia Virginica**, Don, near Huguenot Station on the Staten Island R. R. W. H. L.

LILIUM, L.—**L. Philadelphicum**, L.; N. Y.; Closter, common; *Austin;* Westchester Co.; Bergen Point; Chatham, N. J.; —**L. Canadense**, L.; Hoboken, *Torr. Cat.;* Closter, common, *Austin;* Chatham, N. J.; Glen Cove, *Coles;* Westchester Co. —**L. superbum**, L.; Glen Cove, *Coles;* Astoria; Staten Island; Carlstadt; New Durham, and Orange Co. &c, not near Closter, *Austin.*

ERYTHRONIUM, L.—**E. Americanm** Smith; common; N. Y.

ORNITHOGALUM, Tourn.—**O. umbellatum**, L.; Striker's Bay, *Ruger;* Inwood, *Le Roy;* Closter and Tappan, *Austin;* Yonkers, *Pooley;* abundant on Long Island, in the neighborhood of Newtown, Flatbush, &c., and on Staten Island.

ALLIUM, L.—**A. tricoccum**, Ait.; Closter, common, *Austin;* and Woodside Bowery Bay &c., *Ruger.*—**A. vineale**, L.; common; N. Y.—**A. Canadense**, Kalm; "In fields and meadows." *Torr. Cat.*; meadows, woods! and rocks!!; along the Hackensack in woods, near Tappan in meadows, and along the edge of the Palisades, *Austin;* Passaic Falls, *W. H. L.;* Van Vorst Heights, *Ruger;* Bergen Point.

MUSCARI, Tourn.—**M. botryoides**, Mill.; old places, N. Y. Island, *W. H. L.; Le Roy.*

HEMEROCALLIS, L.—**H. fulva**, L.; not uncommon escape; Manhattanville, Maspeth, *Ruger;* Staten Island, Tappan, N. J., Westchester Co., &c.; Closter, *Austin.*

****AMIANTHIUM**, Gray.—**A. muscætoxicum**, Gray; This plant, not hitherto reported from our vicinity, has been found by Mr. G. C. Woolson, and also Mr. Leggett, in abundance near Rochelle Station, on the Midland R.R., a short distance beyond Hackensack. In *Gray's Manual* it comes next after *Veratrum.*

JUNCACEÆ.

LUZULA, DC.—**L. pilosa**, Willd.; Pascack, N. J., *Austin.*—**L. campestris** DC.; common; New York.

JUNCUS, L.—**J. effusus**, L; common; N. Y.—**J. Rœmerianus**, Scheele; Coney Island.—**J. trifidus**, L.; Sands Point, Ulster Co., N. Y., *Austin*, [extra-limital].—**J marginatus**, Rostkovius; common; N. Y.: Var. **paucicapitatus**, Staten Island: Var. **biflorus**, Rossville, Staten Island.—**J. bufonius**, L.; common: N. Y.—**J. Gerardi**, Loisel; common on Long and Staten Islands, *State Flora*; and probably on N. Y.; Hoboken; Piermont, *Austin.* **J. tenuis**, Willd; common; N. Y.—**J. dichotomus**, Ell.; possibly within our limits, but not reported nearer than Shamong Station, D. & R. R. R.—**J. Greenii**, Oakes and Tuckermann; Long Island probably, *State Flora;* Staten Island, *W. H. L.* [Unless my label has got displaced, I gathered this species many years since in the neighborhood of Racket Lake, *W. H. L.*]—**J. pelocarpus**, E. Meyer; Long Island (*J. Conradi*, Tuck). *State Flora;* Red Bank, N. J., *W. H. L.:* Var. **subtilis**, L., Lake Hopatcong, N. J., *Porter;* vid. *Bulletin*, Vol. XII., § 67.—**J. articulatus**, L.; Staten Island, *W. H. L.*, and, no doubt, elsewhere.—**J. militaris**, Bigel.; Suffolk Co., *Allen.*—**J. acuminatus**, Michx., Bergen Point; Astoria; Jamaica; probably quite common; Borders of salt marshes, *Torr. Cat.:* Var. **legitimus**, common.—**J. nodosus**, L.; "in swamps." *Torr. Cat.*—**J. scirpoides**, Lam.; *Austin, Le Roy, Torr. Cat.:* Var. **macrostemon**; *Torr. Cat.;* Staten Island, *Austin;* Tottenville, *W. H. L.*—**J. canadensis**, J. Gay; common: Var. **longicaudatus**; common: Var. **subcaudatus**; Red Bank, N. J., *W. H. L.*

Terms—One dollar for one copy; five dollars for seven: and half a dollar for every additional copy per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

PONTEDERIACEÆ.

PONTEDERIA, L.—**P. cordata**, L.; common; N. Y.: Var. **angustifolia**; Peach Pond, North Salem, Westchester Co., *Mead.*

HETERANTHERA, Ruiz and Pav.—**H. reniformis**, Ruiz and Pav.; S. New York, *Gray's Manual;* common along the Hackensack, *Austin;* and Passaic, *W. H. L.;* Chatham, N. J., *W. H. L.*

SCHOLLERA, Schreber.—S. graminea, Willd.; Whippany Creek, near Morristown, *Torr. Cat.;* common along the Hackensack. *Austin*; Croton River, *Mead.*

COMMELYNACEÆ.

COMMELYNA, Dill.—**C. Virginica**, L; Inwood, *W. W Denslow;* Var. **angustifolia**; swamps two miles from Flushing, *Mr. P. Dudgeon, State Flora.*

XYRIDACEÆ.

XYRIS, L.—**X. flexuosa**, Muhl., Chapm.; Locust Avenue, Centreville, L. I., *Ruger;* Glen Cove, *Coles;* Ridgefield, Ct., *Mead;* Closter, common, *Austin;* Tottenville, Staten Island, *W. H. L.* A curious little *Xyris*, probably the variety *pusilla*, was found this summer on the borders of a pond in the southern part of Hamilton Co.—**X. Caroliniana**, Walt.; Suffolk Co., *Miller;* near Jamaica Pond, *Ruger;* border of pond in Haverstraw Mts., near Sandfield, *Austin.*

ERIOCAULONACEÆ.

ERIOCAULON, L.—**E. decangulare**, L.; very common about Ferrago, N. J., in streams and ponds, *Austin.*—**E. gnaphalodes**, Mchx.; common in same locality as the preceding species, *Austin. Mr. Merriam* finds these two species at Manchester, and they may attain our limits.—**E. septangulare**, Withering; common.

Organization of the Club.—The final organization of the Club—delayed first by the fraud in the original charter, and subsequently by the illness and death of our loved and revered chief—was finally completed on the 29th of April last, by the election of the following officers:

President:.....GEORGE THURBER.
Vice-President:.....T. F. ALLEN.
Treasurer:.....J. J. CROOKE.
Corresponding Secretary:..JAMES HOGG.
Recording Secretary:.....P. V. LEROY.
Editor:.....WM. H. LEGGETT.
Curator:.....P. V. LEROY.
Executive Committee:....WILLIAM BOWER, I. H. HALL, JAMES S. MERRIAM, JAMES HOGG, G. M. WILBER.
Finance Committee:.....JAMES S. MERRIAM, F. J. BUMSTED, ABRAHAM HALSEY.
Herbarium Committee:....P. V. LEROY, M. RUGER, D. C. EATON.

The Club holds its meetings at the Herbarium in Columbia College in the evening of the last Tuesday of every month, July and August excepted, and all botanists, either residing in or visiting the city, are invited to attend; or, if they cannot be present at that time, to call on the President of the Club at 245, Broadway, or on the Secretary at the Herbarium.

One leading purpose in securing a charter and organizing under it was to enable the Club legally to hold such funds as might from time to time be contributed to further its efficiency.

There is present occasion for such assistance in establishing a fund of about three thousand dollars for the permanent endowment of the Bulletin. This is the only periodical in the country devoted to this attractive and important department of science. It has now been published for more than three years, not, we trust, unapproved by the botanical community. If secured an existence, in the hands of the able men who will more and more resort to the vast and precious herbarium of Columbia College, it is hoped that it may become of lasting service to the science. With this expectation, we claim for it a share in the liberality of our countrymen.

On assuming the chair, PRESIDENT THURBER made the following

INAUGURAL ADDRESS.

GENTLEMEN OF THE TORREY BOTANICAL CLUB,

In entering upon the duties of presiding officer, the first assuming that office since the Club was incorporated, it would seem appropriate for me to give a sketch of the past history of our association. When I look for materials I find but few. We have no record of the date of the beginning of the Club* and its growth has been so gradual and its career so uneventful that there is but a brief story to tell.

The few botanists of the city, knowing that they would always be welcome, were accustomed to visit these rooms from time to time, and it sometimes occurred that without any pre-arrangement several happened in on the same evening. At length it was proposed to have a regular evening for reunion in order not only that we might meet the one around whom we all gathered, but that we might have the pleasure of seeing one another at stated times. If I am not in error this suggestion came from Dr. T. F. Allen, whose proposition was readily seconded by others. Our beginning was such a gradual accretion that those of us who were among the original members can hardly tell how it came to be called even a "Club." We came and went, sometimes two and sometimes a dozen, but there was always an informal social gathering.

Early in the informal existence of the Club it was proposed to make a catalogue of the plants of New York and its vicinity. In 1817 Dr. John Torrey presented to the New York Lyceum of Natural History "A Catalogue of the Plants growing spontaneously

* Not later than 1865.—EDS.

within Thirty Miles of the City of New York," and it was thought that a catalogue embracing the same territory would be useful to botanists, and show interesting changes in our local Flora, in the obliteration of some species and the introduction of others.

The members of the Club, if that which was hardly a body can be said to have members, entered into the work with zeal, and having a common object to labor for, the association assumed a stability that it did not before possess, and increased in numbers. Those at work upon the new catalogue found that nearly a half century had passed since the completion of the first catalogue, and it was proposed that the semi-centennial anniversary of the presentation of the catalogue by Dr. Torrey to the Lyceum should be marked by a festival. Invitations were extended to the leading botanists of the country, many of whom promised to be present, and those who could not accept sent letters full of kindness to him who was the recipient of the intended honor. On the evening of December 20th, 1867, which was marked by one of the most furious of snow-storms, there assembled at the Astor House the members of the Club and a goodly number of invited guests.

The Club had then no officers, and by some process which has ever since remained a mystery, the one who now speaks to you presided at the table and made an address. This address gave an account of the Catalogue of 1817 and an enumeration of the subsequent botanical works of its author. The recipient of the honor made a reply full of modesty and feeling, speeches were made by most of those present, and letters were read from those who were unable to attend.

I have thus alluded to this occasion, because it was the first public demonstration on the part of the Club, and one which, as the proceedings of the evening were published in the American Naturalist, first made its existence generally known.

As materials for the new catalogue accumulated and new helpers came into the field, it became necessary to have a medium through which the co-workers could communicate, and it was proposed to established a monthly Bulletin. The first number of the Bulletin appeared in January 1871, and it has since been continued with commendable regularity. Primarily devoted to matters relating to the catalogue, it has also given many botanical items of general interest. The Bulletin is an unpretending sheet of only four pages, but when we compare its contents with journals devoted to scientific specialties, at home or abroad, we have reason for a just pride in the value of its contents, as well as in their variety and conciseness.

About the time the Bulletin was proposed, it was thought best the Club should adopt a distinctive name. That of "Torrey Botanical Club" seemed the most fitting. In those days we seldom put matters to vote; we "took the sense of the meeting." Soon after this we made a step towards organization, so far as to appoint Dr. John Torrey President, P. V. LeRoy Secretary, and William H. Leggett Editor. But, as we had been in the habit of conversing

in small knots, without any concert of action, it was rather difficult to abandon the custom, and even after we had adopted this partial organization our meetings were not models of parliamentary formality.

As the Club acquired new members and grew in importance, it was decided that we should become a regularly organized body under a charter, that we might enjoy the privilege of "sueing and being sued."

A charter was passed on April 21st, 1871, but was not adopted. It is an interesting illustration of the manner in which the lowest form of politics pervaded legislative action, that among the incorporators of the Club there were introduced the names of two low "Ring" politicians. The charter allowed the Club to hold property to the amount of $50,000 and there was just a shadow of a chance that at some time something could be made, and the names of two of "the ring" were interpolated among those of gentlemen and botanists. Upon inquiring, it was found that it was the custom in granting charters to put in the name of some members of the ring that they might be on hand in case any thing should "turn up."

Of course the members of the Club could not be associated, even technically, with disreputable persons forced upon them in this unfair manner, and they did not adopt the charter until the names of these objectionable individuals were removed, by an amendment passed April 29th, 1872. The Charter was adopted by the Club January 7th, 1873, and a constitution on the 28th of the same month.

Nothing remained for the full organization of the Club but to pass the necessary by-laws and elect the prescribed officers. Before the first election could be held, he whom we should have delighted to honor by chosing him as our president was taken from us. Our head, our beloved friend, Dr. John Torrey, passed from this life on the 10th of March last.

This simple statement suggests to each one of us a loss that I cannot adequately express. Yet I feel that at this time I should place upon the records of the association certain data which, though so familiar to us as to need no telling, should be preserved for those who will succeed us. For, Gentlemen, the Club took root so gradually and its early growth was so healthy, that I feel it will have greater permanence than most associations of its kind; and it would seem that the records of the Club is of all places the most fitting for an account of the botanical labors of him whose name we have chosen.

John Torrey was born in this city on Aug. 15th, 1796. His father, originally from New England, was a Captain in the Continental army and was among those who entered the city upon its evacuation by the British forces.

Of the boyhood of Dr. Torrey we know but little; he attended the public schools and was for a year at a school in Boston. Several times during the latter years of his life I requested him to write out his reminiscences of his early days and his recollections of the early botanists. The idea seemed to please him, but so averse was he to

anything that might appear like egotism, that he never carried out the suggestion. He was rarely given to talking about himself, and all that those most intimate with him know about his youth and the struggles that must have attended the beginning of his scientific career is from chance hints he dropped now and then.

When a mere boy, while upon a visit in the country (the upper part of the island was then "the country,") he saw two young men pass along the road, all travel-stained and laden with strange parcels. The unusual appearance of these young men prompted him to inquire about them, and he was told that they were "the Le Conte boy" and another whose name I have forgotten, and that they were "botanists." The young Torrey for the first time saw a botanist, and he looked upon him as a curiosity, little thinking that he himself would in time be a chief among botanists. The "Le Conte boy" afterwards became the celebrated Major Le Conte, who contributed largely to botany and other sciences.

While still a youth it was Dr. Torrey's fortune to be brought into relations with Amos Eaton, who was the great instructor in popular science of his day, and it was through his teachings ings that the young Torrey first learned the rudiments of botany.

Up to the time he became a medical student we know but little of his career. He had a marked natural talent for practical mechanics, and at one time seriously entertained the idea of becoming a machinist. This love for mechanical affairs remained with him through life, and his talent in this direction was often displayed in various useful ways. He ultimately chose the medical profession and entered the office of Dr. Wright Post, the eminent physician and surgeon of his day. At that time the practice of medicine was very different from what it is now. Then the physician not only dispensed his own medicines, but they were for the greater part prepared in his office by the students. In the preparation of chemical and pharmaceutical compounds Torrey, the student, found occupation in accordance with his tastes, and he often alluded to his experience here as of great service to him in after life.

Either during his apprenticeship, as it was then called—in our day medical students only read with their preceptors—or after he entered the college of Physicians and Surgeons, he was an interested attendant upon the botanical lectures of the eminent Dr. Hosack, at the Elgin Botanical Garden, which were given not far from the spot where we are now assembled. At that time young Torrey was an industrious collector and he often carried to Dr. Hosack the fruits of his herborizations. On one occasion Dr. Hosack was so much pleased with some rare species that he remarked before the class, "That young man has *an old head.*" Medical students then were the same as now; the generic type holds in all times and in all countries. They were not slow to take up the words of the professor, and Dr. Torrey during his student's career was the "old head" of his class.

As a medical student Dr. Torrey must have devoted much time

to botany, as the catalogue already referred to was presented to the Lyceum in 1817,which was a year before he took his degree. Those who are engaged upon the present catalogue, with all the aid and materials that the advanced state of the science brings to their help, can best appreciate the immense labor that must have been required to bring the first catalogue to its remarkable completeness. Copies of the catalogue of 1817 are now very rare and difficult to procure. As we turn over its pages and read of its author's favorite localities, we find that they are now far "down town" and covered by blocks of brick and brown stone. When this catalogue was made up, Canal Street was out of town and was his station for *Draba Caroliniana*. Not only the localities but the co-workers named in the catalogue have long ago passd away. Mitchell, Nuttall, Eddy, Le Conte, Cooper, and others who contributed materials for the work, all departed before its author. William Cooper was the last of these. He was the frequent companion of Dr. Torrey's early botanical excursions, and until the last these two old men held for one another a boy-like friendship as charming as it is rare.

While yet a student of medicine, Dr. Torrey was one of the founders of the New York Lyceum of Natural History. The incorporators met to adopt their charter—if I remember correctly—in one of the rooms of the College of Physicians and Surgeons in Barclay Street. The origin of the Lyceum was marked by a more festive demonstration than attended that of our Club, for upon the adoption of the charter they adjourned to a well known public house and celebrated the event in mugs of ale, paid for by a general contribution of pennies.

During the early career of the Lyceum, Dr. Torrey was one of its most active members and contributed to its Annals many of its most important papers. For many years he was its President. The Lyceum, like other associations of its kind, was not exempt from the misfortune of party. At one annual meeting, when Dr. Torrey desired to decline a reëlection, he was induced to accept a nomination; an opposing faction elected its candidate over him. So hurt was he at what he regarded as an unfair trick that he never again went to the meetings of the Lyceum. In this mention of the Lyceum it may be well to state that by acting as its curator a young botanist from Western New York was enabled to pursue his botanical studies in New York. This young botanist is now known as Prof. Asa Gray.

After obtaining his medical degree, Dr. Torrey took an office in the city, but the attractions of botany, mineralogy, entomology and chemistry prevented him from applying himself seriously to practice. We infer from what he has said that his office was more frequently sought by young scientists than by patients. His love for scientific pursuits, joined to a dislike to witness human suffering, led him to abandon medicine at the first opportunity.

Soon after he was graduated, the expedition of Maj. Long was proposed, and Dr. Torrey was offered the position of botanist.

He was greatly tempted to accept this opportunity for botanical distinction, but he had formed ties which were strong enough to keep him at home. Dr. Baldwin was appointed in his place and upon the death of Baldwin, who was an almost hopeless invalid from the start, the duties of botanist were performed by the surgeon of the expedition, Dr. James.

In 1820, Dr. Torrey published in Silliman's Journal "A Notice of Plants collected by Capt. N. Douglas around the Great Lakes at the Head Waters of the Mississippi.

In 1823, he contributed to the Annals of the Lyceum of Natural History "Descriptions of some new or rare plants from the Rocky Mountains, collected by Dr. Edwin P. James."

The year 1824 was an eventful one to our friend. In it he published "A Flora of the Northern and Middle States, or Systematic Arrangement and Description of all the Plants heretofore discovered North of Virginia." In this year he was married to Miss Eliza Robinson Shaw, and was settled at West Point as Professor of Chemistry in the U. S. Military Academy. This Flora, the concluding pages of which were written on the morning of its author's wedding day, is now rare, a large portion of the edition having been destroyed by fire. It contains over 500 species and includes the first twelve classes of the Linnæan system. In this work the author first manifested his acuteness in diagnosis, and it is remarkable for its elaborate and minute descriptions.

In this same year, 1824, we find "Descriptions of New Grasses from the Rocky Mountains" in the Annals of the Lyceum, and a "Monograph of the North American species of Carex," of which he was joint author with Schweinitz. Schweinitz had placed the paper in Dr. Torrey's hands, to edit and supervise the printing of it, during the author's absence in Europe. When Schweinitz found how much the value of his monograph had been increased by additions and revision, he insisted that Torrey's name should appear as joint author, and that it should be quoted as Schweinitz & Torrey.

Foreseeing that the Linnæan system was to be supplanted by one founded upon a more profound knowledge of the structure of plants and broader views of their relationships, the Flora was not continued beyond its first volume, but its author, in 1826, published a Compendium which contained condensed descriptions of the plants enumerated in the first volume of the Flora and of those that would have been given in the second volume. As one of the few members of the Club whose botanical experience extends far enough back to have used this Compendium as a text book, I can bear testimony to its great superiority to all other botanical works of its time. The name "Compendium" was fitly chosen, as in copiousness, conciseness and compactness, it came as a great relief after the vagueness of other works.

In 1826, Dr. Torrey read before the Lyceum "Some Account of a Collection of Plants made during a Journey to and from the Rocky Mountains, in the Summer of 1820, by Edwin P. James,

M.D., Assistant Surgeon, U. S. Army." This memoir was not published until 1828. Before its publication its author, after three years' service, left West Point to assume the chair of Chemistry and Botany in the N. Y. College of Physicians and Surgeons. This account of Dr. James's Rocky Mountain plants is of especial interest as being the first botanical publication of importance in this country in which the plants were arranged according to the Natural System. Shortly before, the Abbé Correa had arranged a list, in which the genera named in Muhlenberg's catalogue were placed according to the system of Jussieu.

In 1831, Lindley's Introduction to Botany was re-published in this country. Dr. Torrey prepared a catalogue of the North American genera, arranged according to Lindley's orders, which was published with the work and also separately in the pamphlet form.

Dr. Torrey was always fond of studying obscure and difficult orders, hence the Borraginaceæ, Chenopodiaceæ, Amarantaceæ, and Cyperaceæ had particular attractions for him. As early as 1836 he published in the Annals of the Lyceum his "Monograph of the Cyperaceæ." This contained, besides a full account of the other genera, a complete revision of the genus Carex. No publication by our friend shows better work than this, and it was a most valuable contribution to North American botany, as it contained an elaboration of the species collected by Drummond, Richardson, Burke, and other British collectors, whose specimens were loaned by Sir William Hooker.

The Geological Survey of the State of New York was organized in 1836, and Dr. Torrey was appointed as its Botanist. His report was published, after many delays and discouragements, in 1843. It forms two enormous 4to volumes, filled with detailed descriptions of all the plants known to belong to the State, and is illustrated with 161 plates. When we consider that this work was produced amid the labors of his professorship at the Medical College, to which had been added those of the Chair of Chemistry at Princeton, we must wonder at the untiring industry of its author. Whoever was at that time in charge of the survey was economical unto meanness, for Dr. Torrey had to buy his own copy of his own work. During the printing of the work an assistant of the author carefully preserved the revise proofs and put them away in regular order. When the Medical College was moved from Crosby street, this roll of proof sheets was found, and Dr. Torrey gave them to me. Fortunately every page was in its place, and now, handsomely bound, it is one of the prized works in my library, and is unique as being the only copy in existence "presented by the author."

The first number of the "Flora of North America, by John Torrey and Asa Gray," appeared in 1838, the fruit of a most happy association, which continued for over forty years, and which has done so much for the advancement of American botany. In relation to this most important work I can appropriately quote the

words of the surviving associate. In an address before the American Academy of Arts and Sciences, of which Dr. Torrey was a member, Dr. Gray, now its President, said:

"Early in his career Dr. Torrey had resolved to undertake a general Flora of North America, or at least of the United States, arranged upon the natural system, and had asked Mr. Nuttall to join him, who, however, did not consent. At that time, when little was known of the regions west of the valley of the Mississippi, the ground to be covered and the materials at hand were of comparatively moderate compass; and in aid of the northern part of it, Sir William Hooker's Flora of British America—founded upon the rich collections of the Arctic explorers, of the Hudson's Bay Company's intelligent officers, and of such hardy and enterprising pioneers as Drummond and Douglas,—was already in progress. At the actual inception of the enterprise, the botany of Eastern Texas was opened by Drummond's collections, as well as that of the coast of California by those of Douglas, and afterward those of Nuttall. As they clearly belonged to our own phytogeographical province, Texas and California were accordingly annexed botanically, before they became so politically.

"While the field of botanical operations was thus enlarging, the time which could be devoted to it was restricted. In addition to his chair in the Medical College, Dr. Torrey had felt obliged to accept a similar one at Princeton College, and to all was now added, as we have seen, the onerous post of State Botanist. It was in the year 1836 or 1837 that he invited the writer of this notice—then pursuing botanical studies under his auspices and direction—to become his associate in the Flora of North America. In July and in October, 1838, the first two parts, making half of the first volume, were published. The great need of a full study of the sources and originals of the earlier-published species was now apparent; so, during the following year, his associate occupied himself with this work in the principal herbaria of Europe. The remaining half of the first volume appeared in June, 1840. The first part of the second volume followed in 1841; the second in the Spring of 1842; and in February, 1843, came the third and last; for Dr. Torrey's associate was also immersed in professorial duties and in the consequent preparation of the works and collections which were necessary for their prosecution.

"From that time to the present the scientific exploration of the vast interior of the continent has been actively carried on, and in consequence new plants have poured in year by year in such numbers as to overtask the powers of the few working botanists of the country, nearly all of them weighted with professional engagements. The most they could do has been to put collections into order in special reports, revise here and there a family or a genus monographically, and incorporate new materials into older parts of the fabric, or rough-hew them for portions of the edifice yet to be constructed. In all this Dr. Torrey took a prominent part, down almost to the last days of his life."

The question why was not Torrey and Gray's Flora completed, has often been asked by those not familiar with the rapid progress of botanical discovery. Such will find an answer in the words I have quoted. By the time the first volume of the Flora was finished, new materials belonging to the orders contained in that volume demanded a large appendix, and a few years later new discoveries were so numerous that it was impossible for the work to keep pace with them. Its authors pursued the best course: instead of giving their time to the completion of the Flora and allowing the new materials to pass—as they inevitably would have done—into the hands of European botanists, they turned their attention to studying and recording them. Now these discoveries of American plants are mainly recorded by American botanists in American publications, and to secure this result it was well that the Flora was suspended. In this matter—of securing the new plants—both Doctors Torrey and Gray worked, sometimes together, oftener independently, but always with the fullest coöperation. The result has been a series of memoirs unequalled in scientific value by any that have been produced in recent botanical literature. While my object is to record the botanical work of Dr. Torrey, I would not forget that others have labored in the same field. Engelmann, Durand, Newberry, Cooper, Wood, Brewer, Watson, and others whose names I do not now recall, have added to the rich stores of materials for that Flora of North America which we all hope for. Is this much-desired work within the probabilities of the near future? In the address just quoted, Dr. Gray feelingly says: "It remains to be seen whether his surviving associate of nearly forty years will be able to complete the edifice. To do this will be not only to supply the most pressing want of the science, but to raise the most fitting monument to his memory." It may not be improper to add here that Dr. Gray has made arrangements which will relieve him from much of his labor as professor, and is making every effort to devote the coming years to this most important work.

Of the memoirs on North American Botany in whole or in part by Dr. Torrey I gave a list in the address at the festival in celebration of the semi-centennial of his first botanical publication. As a mere matter of record, I briefly recapitulate what was there presented. In chronological order we find that Dr. Torrey published in:

1843, Botany of Nicollet's Report;
1845, Botany of Fremont's 1st and 2d Expeditions;
1848, Botany of Emory's Military Reconnaissance;
1850, A Memoir on Batis. A Memoir on Darlingtonia and Plantæ Fremontianæ were accepted for the Smithsonian Contributions and published a year or two later.
1852, Botany of Stansbury's Report of his explorations in the region of Great Salt Lake;
1853, The Plants of Marcy's Red River Expedition;
1854, Botany of Sitgreaves' Zuni and Colorado Journey.

The reports of the collections of the various Pacific Railroad

surveys were published at intervals from 1855 to 1860, and then not in the order in which they were written.

Enumerating them as they occur in the volumes, we find in Vol. II: The Botany of Pope's, Beckwith's and Gunnison's expeditions, three comparatively brief memoirs in which Dr. Gray's name is mentioned as joint author.

Vol. IV: "Botany of Whipple's Expedition," the most important of all these Railroad surveys in botanical results.

Vol. V: "Botany of Lieut. Williamson's Report."

Vol. VIII: "Botany of Lieut. Parke's Expedition."

In other volumes of the railroad surveys are botanical reports by Newbury, Durand and others, to each of which Dr. Torrey contributed important materials, in many cases working up whole orders.

1861. The Report of Lieut. Ives' Exploration of the Colorado was published with a Botanical Appendix, mainly by Dr. Torrey.

The Report upon the Botany of the Mexican Boundary was published in 1859, the most voluminous, as it is the most important, of all these contributions to the botany of the far West. The survey was, on account of various changes, prolonged over a period of five years or more; it passed over a vast territory, which, for the most part was botanically new. Parry, Wright, Bigelow, Schott and your President all contributed their collections to make up this exceedingly valuable report, one which may fitly close the record of Dr. Torrey's more important contributions to science.

After the Report of the Botany of the Mexican Boundary was completed, Dr. Torrey made an arrangement to transfer his invaluable herbarium and his library to Columbia College, and they were placed in the rooms in which we now meet. I say invaluable herbarium, as no other collection contains so many typical specimens from which the original descriptions were drawn as does this. It is possible that the Corporation of the College is not aware of the priceless value of the treasure committed to its charge, else it would not long remain in its present unsafe position. Whenever I read a report of a fire in this quarter of the city, I fear for the safety of this herbarium. If any word of mine would impress the trustees of the College with the importance of the trust they have accepted, the herbarium would not long remain, as it is now, in an unsafe building. A library may be in time replaced, but no money can restore the specimens collected by our early explorers. When the herbarium was transferred to its present quarters it needed re-arrangement. Specimens had accumulated more rapidly than they could be disposed of, and all those collected by the recent expeditions had to be incorporated with the general herbarium. For several years succeeding the publication of the Report of the Mexican Boundary, Dr. Torrey was employed in herbarium work. No hand but his could properly perform this scientific drudgery, and he went at it with a perseverance that in time brought it to completion.

During these years of herbarium work, necessary though irk-

some, he was constantly examining plants and making sketches that might be useful hereafter. It was a peculiarity of Dr. Torrey that he always recorded his observations by means of the pencil, and if we look through the herbarium there will be found drawings of minute structure by hundreds, giving at a glance what he saw in examining a plant. While he published no drawings as his own, we can find traces of his handi-work all through the illustrations to his various memoirs.

The last important botanical contribution of Dr. Torrey was "The Revision of the Eriogoneae," the joint work of himself and Dr. Gray, published in the Proceedings of the American Academy in 1870.

Many years ago he elaborated that portion of the collections made upon the Pacific coast by the botanists of Wilkes' expedition. This, through the failure of appropriations, was not published upon its completion. One of the last acts of its author's life was to look over the manuscript of this report and commit its final revision for publication to Dr. Gray.

The fondness of Dr. Torrey for sciences other than botany has been already alluded to. At one time he was an enthusiastic student of entomology, or, as he expressed it—he "had the fever." This lasted but a short time, but I have been suprised at his knowledge of insects, when nearly half a century had passed since he studied them.

At one time he gave much attention to mineralogy, a pursuit in which he was often associated with another botanist—Nuttall. The earlier volumes of Silliman's Journal contain important contributions to mineralogy from his pen. Mineralogy is so intimately related to chemistry that he retained through life a lively interest in this department of science.

Those who have regarded Dr. Torrey as a botanist only, will be surprised to know that the avocation of his life was that of a chemist, and that the works that have made him an undying name in science were done in what he regarded as his hours of recreation.

As a chemist he was, as in other matters, acute, patient, cautious, and, I need not add, inflexibly honest. He was a teacher of chemistry for over thirty years and for most of this time in more than one college. His professorial labors were performed at a most interesting period in the history of the science, when chemistry made itself felt outside of the laboratory and manifested its usefulness not only in its relations to medicine and the arts but in the operations of daily life. Year after year large classes of young men went out from his lecture-room and laboratory, and among these are to be found many of the eminent chemists of the present day.

There are some chemists whose reputation is greater among the people at large than it is among men of science, and they are often upon the public platform. Dr. Torrey shrank from this kind of notoriety, and the knowledge of his acquirements as a chemist was mainly confined to scientific men. Had he been so disposed, he could have made chemistry largely renumerative, but it always

seemed to me that he valued his chemical knowledge more for its benefit to others (and they not always worthy) than for any pecuniary reward it might bring to himself. I have known him to give advice of the greatest value to the recipients and make analyses, at a cost to himself of both time and money, without charge, and evidently for the pleasure it gave him to aid another.

When the U. S. Assay office was established in this city in 1854, Dr. Torrey was offered the post of Superintendent, but this being unsuited to his tastes he declined it for the scientific position of Assayer, an office which he held until his death. A short time after entering upon his duties as Assayer he resigned his chair at the medical college and was elected Professor Emeritus. This appointment as Assayer was a deserved recognition by the government of the scientific acquirements of our friend, and it is to be regretted that the salary accompanying it was not in proportion to the responsibility of the position. While discharging his duties as Assayer he was often called in consultation by the Treasury Department in matters requiring a profound chemical knowledge. He was wonderfully fertile in ingenious expedients, and much of whatever security our national currency possesses against counterfeits is due to his suggestions. The relations of Dr. Torrey to the Treasury Department had one happy result. Although he had done so much in describing and naming the plants of the far west, he had travelled but little: he "had never seen a prairie," as I once heard him say with a tone of sadness, and had never ascended a mountain higher than Mt. Marcy. It was a graceful act of the Secretary of the Treasury to send him in 1865 upon a confidential mission to California. He went by the way of the Isthmus and was able to see and enjoy the luxuriant vegetation of the tropics, and, when he reached his destination, was met by an order to make some extended explorations, for the accomplishment of which a revenue cutter was placed at his command. While in California he was able to see many of the plants he had described growing in their native localities, and to make considerable collections for the herbarium.

In 1872 he made another journey to California, this time by Railroad. Upon his return journey he tarried awhile among the Rocky Mountains and ascended Torrey's Peak, which was several years ago thus named by his former pupil, Dr. Parry. It is pleasant to think of him as passing the last days of his botanizing, in the evening of his life, among the alpine plants which in his youth he first made known to the botanical world.

Neither this last journey to California nor one made the previous winter to Florida served to arrest the disease which those who saw him only at intervals could perceive was gradually wasting his body, though it did not dim his intellect nor impair his cheerfulness. At sunset on the tenth of March last he peacefully went to his rest.

I would willingly stop here, for to us who knew him no words of eulogy are needed. Each one knows how the intelligence of his death brought to him a sense of personal bereavement and told him how strong a hold our chief had upon his affections.

But we are not to consider ourselves alone. We expect that long after all of us have followed the great botanist, young botanists will join the Torrey Botanical Club. These may ask, as it is right they should, "What manner of man was this whose name you bear?"—What answer shall we leave to them? As to his scientific attainments, his works stand in witness. For the rest we may say that he was in the highest, broadest, fullest, truest sense a Christian gentleman. I know no word that seems better to express his character. What student, however young or unknown ever came to him for aid or advice and went away unsatisfied? What older botanist ever claimed that he had been overreached by him? Who ever coupled scientific unfairness—for there is such a thing—with the name of Torrey? Who in coming here to meet him ever stopped to consider in what mood he should find him? Was there not always the same welcome to all? The same genial presence ever prevaded these rooms, and though we know it will come no more, has left a fragrance of memories that time can never remove.

Not only in his works will the name of Torrey live while our science is studied, but his name will be perpetuated so long as our present vegetation endures. The genera dedicated to many eminent botanists are represented by, if not insignificant, at least not noticeable plants. In this respect our friend was more fortunate. Many years ago an evergreen of Florida, related to the yew, was given the name of Torreya. Previously to this at least two other plants were dedicated to him, but it was found that they were genera made without sufficiently distinct characters and fortunately one of our most interesting trees could undisputedly bear this worthy name. For many years the Florida Torreya (*T. taxifolia*) was the only known species, but later discoveries have shown that the genus is represented in widely separated countries. Besides the original species in Florida, there is one in Californa, another in Japan, a third in China, and if recent European announcements are well founded, still another in the Bogotan Andes. Long after we shall have passed away and perhaps our association be forgotten, these evergreen forests in our own land and in far distant countries will keep alive the name which we now proudly and affectionately bear as the title of our Club.

Gentlemen, we have been incorporated under the name of one whom we hoped would be spared many years to receive the selectest honors we could bestow. His departure left a vacancy that none of us feels he can adequately fill. You have chosen to the chair that he would have occupied one who has these many years sat at his feet an humble follower, a loving pupil.

No matter who may be called away, the affairs of the world go on. However great a vacancy may be left, some one is chosen to fill it. No one can feel more acutely than the present incumbent how unworthy he is to fill the place to which you have chosen him. He can only endeavor by devotion to the good of the Club to leave you no occasion to regret your choice.

In taking the name of Torrey for our Club we assumed a pledge, implied if not expressed, to bear ourselves worthily. The name of Torrey should be as a sacred trust. How can we best honor it? Could he have spoken a last word to us it would not be that we should remember him by any honors to himself, but he would have asked the Club to keep alive the love for the science which he loved so much and for which he did so much. That we should follow science, as he did, with no self-seeking, but to set forth God's truth alone. That we should, as he did, do all in our power to lift up and encourage young and struggling disciples. He would say, "Listen to the great Teacher who said, 'Consider the lillies of the field' and follow him," but he was too humble to add what we can say—as he did.

---

§ 35. **Nymphæa odorata,** Ait. **Rose-flowered variety.**—[We think that the remarks in Gray's Manual cover nearly all the variations mentioned in the following note, except those of *N. tuberosa*, Paine. In the Pines we have found the so-called variety *minor* to prevail. The note is nevertheless worthy of record.]

Under the impression that some old number of the BULLETIN contained an account of the rose or purple flowered variety of *Nymphæa odorata*, I found, on search, nothing further than § 66, in No. 10 of Vol. II., by "D. S. M.," mention of "quite small flowers. . . . , white within, but the outer petals and the sepals richly tinged with rose-color." I have never supposed that the marks stated by D. S. M. were sufficient to constitute, or to identify the rose-colored variety of N. odorata. If so, I can testify from personal knowledge that the variety is very common indeed, and also, that it is somewhat variable; *i. e.*, varying into white again, and, therefore, hardly a variety. For one instance out of many, about three or four weeks ago, I obtained from the "Goose Pond," in Jamaica, L. I., about thirty flowers, of "very choice and delicate perfume," and the "outer petals and the sepals richly tinged with rose-color," but the flowers were quite large. The rose-color was very decided and bright. I have repeatedly seen the same thing in New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, the ponds in W. New York, and in the New Jersey Pines; but usually the rose-color is about the color that a flower of *Trillium grandiflorum* takes on before fading—a decided and rich rose, but not extremely deep. I know of a patch in the Owasco outlet, on the edge of the city of Auburn, where I have seen the flowers some years pure white with green on the sepals, and sometimes with the rose tinge. Once, crossing from Lake George to Ticonderoga, a boy brought to the stage for sale a bunch of which two flowers had *each two rows* of rosy petals, their other petals, as well as the other flowers, being quite white. Paine's *Nymphæa tuberosa*, also, (which is remarkable for its obtuser petals, and their *clear* white color, maintained pure, without any transparency along the petal edges, until it meets the green of the sepals) I have now and then found with a rosy color on the in-

side of the sepals and on the outer petals. And in this case, the peduncle is less downy than when the flower is pure white. I might multiply instances.

The real rose-colored variety, if I am correct in my general supposition, I remember to have seen in 1865, on the west side of the railroad track between Atsion and Shamong, in a hot tramp on the 4th of July. All the petals were deeply colored with rose, and they were of the narrow sort, standing stiffly up in the middle of the flower, and the color deeper away from the centre of the flower. I have an impression, also, that I have seen the same variety from the car windows while passing on the same railroad, but would not make a certain statement.

Not infrequently I have seen in hot-houses the *purple*-flowered nymphæa, in large tanks. Its general appearance closely resembles that of the rose-colored variety, except that its flowers are nearly *blue*, while ours is much nearer red. I hope for some better information regarding our rose-colored variety. I. H. HALL.

§ **36. Sarracenia purpurea,** L.—In the *American Journal* for August (which, owing to unavoidable delay, anticipates our July number), Dr. Gray asks "observers to note whether any viscid secretion appears anywhere on the smooth portion, below the orifice of the pitcher," of this plant. He would "expect the sugary secretion, if any, to appear only in warm weather." We refer our readers for more details on this interesting subject to the note on page 149 of the *Journal*.

§ **37. Juncus maritimus,** Lam.—[In accordance with the following note, we find that we were in error in ascribing *J. Rœmerianus* to Coney Island. Our plant has the characters which Dr. Engelmann here points out as belonging to **J. maritimus**.]

In your list of Junci of the New York flora, No. 6, p. 24, you mention *J. Rœmerianus* from Coney Island. Several years ago Professor Chas. H. Peck of Albany sent me the true *J. maritimus* Lam. as collected on that same island, in Sept., 1868, a plant which I had not before seen from any American locality. Have you compared your specimens from Coney Island well; are they really *J. Rœmerianus*, and do both species grow there? If not, what then is the limit of *J. Rœmerianus*? Besides the minute characters of the flower and fruit, they can be distinguished at a distance by their habit and color. *J. maritimus* has a green contracted, *J. Rœmerianus* a spreading brown panicle, and blooms, I believe, much earlier. G. ENGELMANN.

§ **38. Monstrous Larch.**—We noticed in Sullivan Co., this summer, a tree of the *Larix Americana*, Mch., from a majority of whose cones young branches were sprouting, the axis having taken on a new growth.

Terms—One dollar for one copy; five dollars for seven: and half a dollar for every additional copy per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

§ 39. **Fertilization of Gerardia flava**, L.—I have been watching the fertilization of this plant. The flower opens outwards, or a little downwards, with the stamens and pistil crowded close to its upper lobes. Both the cells of the anther and the summit of the stigma face toward the earth, so that self fertilization is effectually prevented; besides, the anthers appear to mature a little before the stigma, which finally projects some way beyond the longer pair. I saw a honey-bee visiting these flowers in search of pollen, both thighs being already weighted with large pellets. It entered the flower back downward, clinging to the filaments for support, and, turning around as it worked away with its proboscis, dragged the pollen out of the cells, while at the same time the pellets upon its body brushed against the stigma. Every flower must be visited, as all the seed-vessels were maturing.

Aquebogue, August. H. W. YOUNG.

§ 40. **Fern-fungus.**—A frond of *Pteris aquilina*, L., sent us by Mr. Young, was marked by black spots between the veins. Mr. Peck, the fungologist, writes that it is *Dothidea Pteridis*, Fr. (Syst. Myc. Vol. II., p. 555. Handbook of British Fungi, p. 807), and that he has seen sterile specimens only, these, like the others, being without spores.

§ 41. **Suffolk Co.—Riverhead.**—The only plant new to our State that I can report this year is *Carex striata*, Mchx.—*Rumex Engelmanni*, Ledeb., proves to be well established at the mouth of Peconic River, covering a large area of sandy beach with *Calamagrostis arenaria* and *Andropogon scoparius*.

I have also to report finding *Lobelia Dortmanna*, L. in Sweezy's pond, one mile S. W. of Riverhead;—*Tilia Americana*, L., *var. pubescens*, *Gray*, in two different localities at Northville;—*Solidago odora*, *Ait.*, *var. inodora*, *Gray*, at Laurel Pond, Franklinville, none of the typical form being found with it. The pellucid dotted leaves marked it unmistakably, but the anisate odor was as entirely wanting as in *S. arguta* with which it grew. As before I find this form in more loamy soil than the common one, and suppose that it is frequently overlooked. Does not the character of the soil alone cause the development of this scentless form? At Luce's pond in Northville I find *Cicuta bulbifera*, L; *Myriophyllum tenellum*, Bigel.; *Lathyrus palustris*, L.; and abundance of *Woodwardia argustifolia*, Smith. In shaded pools *Lemna minor*, L., abounds; while in pools of brackish marshes with *Pluchea camphorata* (Does this ever grow in soil not saline?), at Wading River I find *Utricularia intermedia*, Hayne. At Long Pond this summer *U. inflata*, Walt., has been abundant; but, owing to the unusual height of the pond, the locality of *Rhynchospora nitens* is inundated and no plants are to be found.

I desire to exchange botanical specimens, especially of the Cyperaceæ and Gramineæ.

Aquebogue P. O. HENRI W. YOUNG

§ 42. **Suffolk Co.—Wading River.**—Mr. Miller reports the very interesting discovery of *Polypremum procumbens*, L.; also specimens of *Asplenium ebeneum*, Ait., with the fronds wider than usual and the segments very sharply serrate, which he proposes to ticket at Dr. Gray's suggestion as Var. *serratum*. Among other discoveries,

Mr. Miller finds *Plantago pusilla*, Nutt., almost as common as *P. Virginica*, L.; *Asclepias purpurascens*, L.; *Botrychium simplex* Hitchcock, quite abundant; *Cunila Mariana*, L.; *Scirpus polyphyllus*, Vahl.; *S. fluviatilis*, Gray; and *S. Olneyi*, Gray.

§ **43. Larix again.**—Mr. Hall noticed, in August, Larches in Central Park that had put forth new leaves and now and then a new cone.

§ **44. Aspidium fragrans, Swartz.**—We have received from Mr. Charles H. Peck beautiful specimens of this fern, from Lake Avalanche in the Adirondacks. Mr. Peck remarks, with a conscientiousness which we earnestly hope other collectors will lay to heart, "It is not plenty there, and I was careful not to exhaust the locality, so obtained but few." Mr. Robinson, of Salem, Mass., points out a probable error in Vol. III, No. 2, of the BULLETIN, where Bellows Falls, N. H., is given as a locality. He says: "I have specimens from Alpine Cascade, near Berlin Falls, N. H., and also *Woodsia glabella*, R. Brown, from the same place. I found *A. fragrans* at Crystal Cascade, near the Glen House, August, 1865."

§ **45. Herbarium for Sale.**—Dr. K. Keck, Schloss Friedegg, Schwertberg, Upper Austria, writes us that he is the owner of a very rich Herbarium, which he has concluded to sell. He states that it comprehends the Flora of the whole of Europe in rare completeness, and fourteen or fifteen thousand of the rarest species of Asia (particularly from the Russian provinces), of Africa and of New Holland, all mounted and arranged after Endlicher. In all rather more than less than 100,000 specimens, of 19,000 species. He sends us a long list of the special collections (in nearly every part of the world), from which his herbarium is derived; among them we notice the names of our own Canby and Wright, and he calls particular attention to the collection of Ledebour in the north of Asia, and of Sieber in the West Indies, New Holland and elsewhere. Dr. Keck also sends us, as a fair specimen of the richness of his collection, the names of about two hundred species of Astragalus, about eighty species of Panicum, and nearly eighty of Polypodium. He values the whole at $6,000, or $6 per hundred specimens.

We cheerfully comply with his request in calling the attention of the managers of our public institutions to this opportunity of securing a very valuable Herbarium. Of course, impartial testimony would have to be obtained from Europe. We will gladly show his letter and lists to those interested.

§ **46. Strangers.**—Just north of the Hyde Park Station of the Hudson River R. R., we found, early in September, *Rudbeckia triloba*, L., but the lower leaves were very slightly lobed, and *Galium Mollugo*, L., which is heretofore reported only from Washington Heights, New York Island. Between Poughkeepsie and the Highlands *Lythrum Salicaria*, L., abounds. We did not notice it below the Highlands, though we have been told that it occurs there.

§ **47. New Publications.**—We have received: 1. *John Torrey: A Biographical Notice*, [from the American Journal of Science and Arts, Vol. IV., June, 1873], By A. Gray.—2. *Notes on the Genus Yucca.* By George Englemann, M. D., [Transactions of the Academy of Science of St. Louis.]—3. *Descriptions of New Species*

of Fungi. By Chas. H. Peck [Bulletin of the Buffalo Society of Natural Sciences.]—4. *Catalogue of the Phænogamous and Vascular Cryptogamous Plants of Canada and the Northeastern Portion of the United States*, including Virginia and Kentucky on the South, and Missouri, Iowa and Minnesota on the West. By Allen H. Curtiss, Liberty, Bedford Co., Va. Price: one copy, 20 cents; three copies, 50 cents; seven copies, one dollar. This catalogue, covering territory not included in any other, will be found most convenient for purposes of exchange. It is comprised in eight large pages. As it is meant for transmission, *by letter*, the species are not numbered, but, by an ingenious and readily intelligible device, the distribution and Manuals containing the descriptions are concisely given. For our own purpose we prefer this form of catalogue as less troublesome and more significant.—5. In the *American Journal*, for August, Dr. Gray has a notice of Mrs. Hooker's Translation of Maout and Decaisne, of which work he says: "It is the *desideratum*, the general work . . . . . since Lindley's Vegetable Kingdom ran out of print." If we are correctly informed the original can be imported for much less than the translation.—6. *The Popular Science Monthly* contains an excellent Memoir of Dr. Torrey with a portrait. We do not like the latter as well as that which appeared in the *American Agriculturist* for April.

§ **48. Monstrous Teucrium.**—While examining a specimen of *Teucrium Canadense*, gathered a few days ago at Coney Island, I was much surprised at finding, instead of the usual four ovules of the Labiatæ, *ten* ovules, arranged about a somewhat conspicuous central placenta. The specimen had become somewhat withered, and the flowers dried up; the calyx, however, was not in any respect out of the way. On examining another flower, my surprise was greatly increased at finding a calyx with eight teeth, four acute and four obtuse, and containing *two placentæ*, one of them surrounded by *six* ovules, the other by *five!* At once it became clear to me that the previous one, with its ten ovules, must doubtless be an imperfect attempt at a doubling like the second one. So far as I could judge from the somewhat withered flowers, there was no indication in them of this anomalous structure of the ovary. They were situated at the base of the spike; the rest of the flowers and calyces presented nothing uncommon, and the rest of the ovaries, so far as examined, had the usual fourfold division.

I should be glad to know if such monstrosities have been noted in this species by any other correspondents. To me, their occurrence was very novel.

NEW YORK, *August 28th.* D. S. M.

§ **49. Botanists of the Pacific Coast.**—Upon looking over my inaugural address in print I deeply regret to find that in enumerating (see p. 34) those who have added to the store of materials that now makes a fairly complete flora of North America possible—I have omitted to name the botanists of the Pacific Coast. As you may have judged from the manuscript, my remarks were drawn up in the most hurried manner, and I would like to place upon record what I should have done in a more careful enumeration, my high appreciation of the labors of Bolander, Kellogg, Xantus, Bloomer,

Hillebrand, and their co-workers, who have so industriously labored in their interesting field, and who have done so much to elucidate obscure points in the flora of the Pacific Coast. G. T

§ **50. Botanical Object Lessons.**—Wishing this spring to cultivate in a class of young boys a taste for the observation of nature, and having only ten minutes a day to spare, I had them bring such plants or parts of plants as they could, mostly specimens from the house areas or public squares, and gave them very little instruction till their discoveries called for it. I was surprised and delighted with the quickness of their observation when sharpened by a little encouragement. In general, nothing escaped them. One little fellow discovered the double serrature of a leaf, and another came rushing in at recess with a curiosity in the shape of a lilac leaf which had a slight tendency to be tri-lobed. I was very much interested in this instance, both because this slight irregularity had arrested his attention while at play, and because in some of the Oleaceæ the leaves are compound.

§ **51. Postage on Plants.**—From the *United States Mail and Post Office Assistant*, *New York*, *February*, 1873, we extract the following: "The *law* fixes the rate for matter wholly or partly in writing, except book manuscript and corrected proofs passing between author and publisher, at three cents for each half ounce or fraction thereof, and the Postmaster-General has no discretion in the matter." According to this reading of the law, there must be no labels with the plants, and we have twice had to pay letter postage, because the words "Botanical Cuttings," or some equivalent phrase, had been written on the outside to explain the nature of the package. Upon our appealing to the Station-master, he stated that such was the present ruling in New York.

§ **52. Arceuthobium in Sullivan Co.**—I enclose a few specimens of *Arceuthobium* just collected in the town of Forestburgh, Sullivan County. This is still outside the limits embraced by your Catalogue, but it is nearer than the other two known stations, and indicates a southern rather than a northern range. I looked for it in a recent trip in the Adirondack mountains, but in vain. Its occurrence here is in greater abundance than in Rensselaer County, but in a similar locality, viz., on small spruces (*Abies nigra*) in a sphagnous marsh.

Gilman Station, Sullivan Co., N. Y., Sept. 18th, 1873. CHAS. H. PECK.

§ **53. Errata.**—P. 24, l. 4 from bottom read Bumstead: p. 28, l. 22 from bottom read "choosing": p. 31, l. 21 from top, for "species" read "pages": p. 38, l. 19 from bottom, read "California." To the list of Dr. Torrey's publications should be added:

1837, New Genera and Species of Plants.

Terms—One dollar for one copy; five dollars for seven: and half a dollar for every additional copy per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

54 § **Elias Durand.**—The death of Elias Durand deserves some notice at the hands of the Club, not only because he was an active promoter of our science, but because he was a long-time friend of Doctor Torrey.

Mr. Durand was born in Mayence, France, June 25, 1794, and died on the 15th of August of the present year. He was, therefore, in the 80th year of his age. He served in the medical corps of the first Napoleon, and was present at many battles. He gathered his specimen of *Menyanthes trifoliata* amid the roar of the bloody field of Leipsic, showing his strong botanical bent even then. At Hanau he was made prisoner. On the final overthrow of Napoleon he came to the United States, landing in New York in July, 1816. Settling first in Baltimore, where he married, in 1825 he removed to Philadelphia, a city which he made his home during the remainder of his life. He was by profession a pharmaceutist and chemist and, coming to this country when the science of pharmacy was in its infancy, at once took a high position to which his acquirements entitled him. He was long one of the active members of the Philadelphia College of Pharmacy, and for many years was the leading Pharmaceutist of Philadelphia. His store on Chestnut Street was the centre of attraction to the eminent physicians and men of science of twenty or thirty years ago, where his genial bearing and sympathy with scientific pursuits made all such visitors welcome. Mr. Durand was an active member of the Academy of Natural Sciences, and was for a long time at the head of its committee on botany. He retired from business, with a competence, many years ago, but did not give up his love for botany, as nearly every day found him at the herbarium of the Academy engaged in some useful work.

The manner in which Mr. Durand's attention was directed to the flora of this country is perhaps a bit of history worth recording. An eminent botanist thus relates it: "I give it as nearly as I can "recollect, it being now some thirty years since I heard it from his "own lips.

"When Mr. Durand left France for this country, American "plants were but little known and in great demand. Some one, "whose name I do not remember, but a gentleman of means, and "if I mistake not, of title, gave the young Durand funds with "which to purchase for him a collection of North American Plants. "At that time Rafinesque was in the height of his erratic career, "and Durand arranged with him to furnish the required collection. "After the bargain was made, Rafinesque, always poor, contrived "to get his pay in advance. The time at which the collection was "to be delivered had expired, and the day upon which the vessel was "to sail was close at hand, and still the plants were not delivered. "At last, on the very day of the sailing of the vessel, Rafinesque "appeared with his parcels of specimens. Durand had only time "for a hasty inspection and found that the bundles consisted of "a lot of worthless rubbish. He was highly mortified at being "obliged to send to his friend, who had already paid a liberal price, "such a poor return, and he determined to make amends by form-

"ing a collection himself. With this view he began to herborize, "and in the course of a few years sent to his friend a remittance of "plants that was every way satisfactory. Having begun the study "in this manner, he formed for it a real love which remained with "him through life. As to Rafinesque, he was always poor and in "trouble, and in the last years of his life it came in Durand's way to "afford him assistance. When Rafinesque died, his accumulations "fell into Mr. Durand's hands; he selected such specimens as he "needed for his own herbarium, and then forwarded the parcels to "me. This was some twenty-five years ago, and my herbarium was "small. I well remember with what delight I received the huge "parcels, nearly a cart-load, of Rafinesque's collection. As well as "I can now recollect there remain in my herbarium but just two "specimens. A more worthless lot of dried sticks and leaves—it "would be wrong to call them specimens—it would be difficult to "imagine. If the stuff that came to me in any manner represented "that collected for Mr. Durand's friend, I can well understand how "he must have felt it necessary to make some reparation."

Rafinesque was, neverthless, an eager observer, however slovenly a maker of what Schleiden spitefully calls herbarium hay.

Mr. Durand collected very thoroughly in the neighborhood of Philadelphia, and was the constant friend of all botanists who visited that city. Although he never said so directly, no doubt he did much to assist Nuttall. Nuttall was, by the way, an eccentric botanist. Although they met so frequently at the Academy and elsewhere, and were, so to speak botanically intimate, yet Durand never knew how or where Nuttall lived.

When Mr. Durand retired from business it was his desire to devote himself to botany, but at that time his eye-sight failed him to such a degree as to prevent him from close application to a study that requires correct observation.

His principal contributions to botanical literature were: *Plantæ Heermannianæ* in conjunction with Dr. Hilyard, this is an account of a collection made in South California; *Plantæ Prattenianæ Californicæ*, an account of a collection made by Henry Pratten, Esq These were published in the Journal of Botanical Science in 1854 and 1855. The first of them was republished with additions in the 5th vol. of the Pacific R. R. surveys. In 1859 he published in the Journal of the Academy a *Sketch of the Botany of the Basin of the Great Salt Lake of Utah*. This was founded upon a collection made by a lady, Mrs. Carrington, a resident of Salt Lake City, and the plants described in other memoirs were here enumerated so as to present a view of the botany of that region up to the time of the publication. Mr. Durand was also the author of a treatise *Sur les Vignes et les Vins des Etats Unis* (published in France,] and of an enumeration of the plants collected in the Polar regions by Kane and Hayes.

Although so long a resident of this country, Mr. Durand remained a thorough Frenchman. It was the pride of his life to have served under *l'Empereur*, and when Napoleon's nephew had medals distributed to those who had served under his uncle there was no

more happy recipient of this bronze token than our friend Durand During his career he accumulated an herbarium which, though not remarkably large, was of great value. It probably contained a more complete set of Nuttall's collections than any other, not excepting the herbarium of the Academy. In 1868 he carried out his long cherished intention of depositing this herbarium in the Paris Museum, and made a voyage to France almost solely for that purpose. We regret that our friend had not sufficient American feeling to allow his herbarium to remain in the country where it would be most useful. In his will he directed that specimens he had accumulated since 1868 should be incorporated with the main collection. His botanical library he directed to be deposited in the herbarium room of the Academy, where it can be available for the working botanists, who have heretofore been obliged to go to the general library for works of reference.

Mr. Durand was personally an exceedingly courteous and genial gentleman, who probably did as much for botany by the encouragement he gave others, as by any direct contributions he made himself.

§ 55. New Species of Fungi, by W. R. Gerard. *No. I.*

Æcidium Nesææ, *n. sp.*—*Spermogonia.*—Spermogonia situated on a thickened yellowish spot, on the upper surface of the leaves, opposite the clusters of peridia. *Protospores.*—Perithecia densely aggregated, seated on a greatly thickened subiculum, either in circinating or elongated clusters; spores orange yellow, .0007′ in diameter.

On leaves and stems of *Nesæa verticillata*, greatly distorting them. Where it attacks the stems it forms large gall-like excrescences, from one to three inches in length, and about three-quarters of an inch thick, variously twisting the stems and very often bending them nearly double; on these excrescences the peridia are closely arranged in parallel lines.—Poughkeepsie, Aug.—Oct.

Trichobasis Hyperici, *n. sp.*—Sori roundish, minute, reddish-brown, surrounded by the ruptured epidermis; scattered extensively over both surfaces of the leaf. Spores brown, ovoid, rugose; .001″ long.

On both surfaces of leaves of *Hypericum corymbosum*. It is probable that this is the primary form of *Uromyces Hyperici*. Schw. —Poughkeepsie, August and September.

Sphæropsis Averyana, *n. sp.*—Epiphyllous; spots dark-brown, perithecia circinating, each seated on a dense white mycelium; spores rod-shaped, hyaline, .0003′ long.

On leaves of *Richardia Aethiopica*, in the fernery of Dr. Avery of Vassar College, Poughkeepsie, July.

Discosa maculaecola, *n. sp.*—Spots orbicular, white, circumscribed by a dark brown line. Perithecia flattened, rugose-plicate, sometimes scattered over the spots, but oftener seated near the circumference. Spores 3-septate, obliquely aristate at each extremity; .0006′ long.

On the upper surface of living leaves of *Smilax rotundifolia*.

Poughkeepsie, Summer and Autumn. This species has the aspect of a *Septoria* or *Phyllosticta*.

Septoria Verbenae, *n. sp.*—Epiphyllous; spots minute, orbicular, white; perithecia few, minute, scattered over the spots; spores long, thread-shaped, very-pale yellow, filled with a row of nucleoli, .0024′ long.

On leaves of *Verbena hastata*. Poughkeepsie, Autumn.

Peziza chrisophthalma, *n. sp.*—Small, sessile, margin raised, disk at first concave, at length convex. Asci clavate, .01′ long; paraphyses clavate, filled with orange-yellow granules; spores broadly oval, .001′ by .0006′, with a single nucleus. Whole plant deep orange-yellow, about one line in diameter.

On damp earth, among mosses, in gardens. September, Poughkeepsie.

Uncinula geniculata, *n. sp.*—Hypophyllous; mycelium in roundish spots, or sometimes covering nearly the whole surface; persistent. Conceptacles, .004′ in diameter; appendages 30-40, one and a half times the length of the diameter of the conceptacles; sporangia 5–8, ovate, rostrate; spores 6.

The appendages have a tendency to become angularly bent, whence the specific name.

On *Morus rubra*. August—October. Poughkeepsie.

§ 56. **The Connecticut Valley Botanical Society**—held its first annual meeting at Amherst, Mass., Oct. 1.

This is a new society, numbering about twenty members, ladies and gentlemen.

President—Prof. C. H. Hitchcock, Hanover, N. H.

Vice-President—Rev. H. G. Jesup, Amherst, Mass.

Secretary—Mrs. M. L. Owen, Springfield, Mass.

It is designed as a bond of Union among the lovers of Botany throughout the Connecticut valley, both for general study of the science and to ensure a more thorough acquaintance with the flora of this most interesting portion of New England. H. G. J.

§ 57. **Cyperaceæ**—We want much more material before entering upon our list of this order.

§ 58. **Hepaticæ Exsiccatæ**—Mr. Austin informs us that he is now printing for this work. It will contain over 170 numbers, and will be accompanied with a pamphlet like the "Musci." The price will be for the present $15 (never less).

§ 59. **List of Botanists.**—We shall do all in our power to get this ready for the next number of the Bulletin. We hope that those who have information which they have not furnished will give it without delay. Our field is North America and the West Indies.

§ 60. The sketch of Mr. Durand is, in the main, a paper read to the Club by its President. We have added a few facts for which we are chiefly indebted to the kindness of Mr. Thomas Meehan. The faults are our own.

Terms—One dollar for one copy; five dollars for seven: and half a dollar for every additional copy per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

Vol. IV No. 11.] BULLETIN OF THE TORREY BOTANICAL CLUB. [New York, Nov., 1873.

BOTANICAL DIRECTORY,

FOR

NORTH AMERICA AND THE WEST INDIES.

PART I.

EXPLANATION.—The name of the State and the department of the science are indicated here: the full address will be found under the name of the State in Part II. The prefix "Spec." implies that the subject which follows is at present more particularly in favor, but not exclusively; without that prefix, exclusively. "Cult." stands for "cultivated" or "cultivates." Additions and corrections for the Second Edition, next Autumn, are earnestly requested.

A.

Alcott, Rev. W. P., Ct.
Alger, R. F., Mass.
Allen, Dr. T. F., N. Y. and Ct. *Spec. Medical and Characeae.*
Allmendinger, Miss E. C., Mich.
Ames, Mrs. Mary E. P., Cal.
Ames, Mrs. Fanny G., Pa.
Anderson, Dr. C. L., Cal. *Spec. Californian and Marine Algae.*
Anderson, Miss Susan E., Mass.
Andrews, Dr. T. L., N. Y. *Spec. Californian.*
Antisell, Prof. Thos., M. D., D. C.
Apgar, Prof. A. G., N. J.
Armsby, Dr. J. H., N. Y.
Arthur, J. C., Iowa.
Atwater, Mrs. E. E., Ill. *Spec. Filices.*
Aughey, Prof. Samuel, Nebraska.
Austin, C. F., N. J. *Spec. Musci and Hepaticae.*
Austin, E. P., D. C. *Spec. Michigan.*
Averill, Horace, N. Y. *Marine Algae.*

B.

Babcock, H. H., Iowa.
Bacon, Austin, Mass.
Bagg, Dr. M. M., N. Y.
Bailey, Prof. L. W., Br. Am.
Bailey, W. W., R. I.
Baily, Dr. Cady, N. Y.
Brandegee, Townshend, S., Col. *Spec. Filices.*
Barnston, G., Br. Am.
Barratt, Dr. Joseph, Ct. *Spec. Salices and Solidagines.*
Barrows, Dr. Nathan, N. H. *Spec. Carices.*
Barstow, Dr. J. W., N. Y. *Cult.*
Bates, Dr. Joseph, N. Y.
Beal, Prof. Wm. J., Mich.
Bean, Thos. E., Ill.
Beardslee, Dr. H. C., Ohio.
Beatty, Dr. Ormond, Ky.
Beauchamp, Miss M. E., N. Y.
Beauchamp, Rev. M. W., N. Y.
Bebb, M. S., Ill. *Spec. Cult.*
Bechdoldt, Robert, Pa.
Belknap, W. R., Ky.
Bell, Prof. Robert, Br. Am.
Bennett, Jas. L., R. I.
Berckmans, P. J., Ga. *Spec. Cult.*
Berry, W. A., Pa.
Bessey, Prof. C. E., Iowa.
Bigelow, Dr. Jacob, Mass.
Bigelow, Dr. J. M., Mich.
Billings, Dr. J. S., D. C. *Spec. Fungi, etc.*
Bingham, Miss Ada B., Wis. *Spec. Wisc.*
Biscoe, Prof. T. D., Mass. *Spec. Lemnaceae and Hydropterides.*
Blain, Jose, W. I.
Blakie, Geo. S., Tenn.
Blanchard, Edward R., N. J.
Blanpied, B. T., N. H.
Bloomer, H. G., Cal. *Spec. Californ. and Nevada, Cult.*
Bodley, Miss Rachel L., Pa.
Boeking, H. V., Pa.
Boice, Miss Carrie A., N. J.
Bolander, Prof. H. N., Cal. *Spec. Glumaceae and Cryptogameae.*
Bolles, Rev. E. C., Mass. *Spec. Musci.*
Boott, Wm., Mass. *Spec. Gramineæ, Cyperaceae and Filices.*
Both, Dr. Carl, N. Y. *Spec. Medical.*
Bourquin, Frederic, N. J. *Filices.*
Bourquin, J., Pa.
Bourquin, — N. Y.
Bowen, Miss Susan, Mass.
Bowen, Mrs. W. C., N. Y.
Bower, Wm., N. Y. *Cult. American Rarities.*
Boyd, David, Col.
Bradley, Dr. S. B., N. Y.
Brainard, Prof. H., Vt.
Brainerd, Geo. B., N. Y. *Spec. Algae.*
Branham, Prof. J. R., Tenn.
Bray, Mrs. Maria H., Mass. *Marine Algae.*
Breckenridge, W. J., Md.
Brendel, Dr. Frederick, Ill.
Breyoort, J. Carson, N. Y.
Brewer, Prof. Wm. H., Ct. *Spec. Californian.*
Bridges, Dr. Robert, Pa.
Broadhead, G. C., Mo.
Brown, Mrs. A. E., Vt.
Brown, R. Willis, N. J.
Brownne, Robert H., N. Y.
Buchanan, I., N. Y. *Cult.*

Buchanan, Robert, Ohio.
Buckhout, Wm. A., Pa.
Buckley, S. B., Texas.
Bumstead, Dr. F. J., N. Y.
Burbank, Prof. I. S.
Burgess, Edward S., N. Y.
Burk, Isaac, Pa.
Burr, Fearing, Mass.
Burrill, Prof. T. J., Ill.
Buswell, E. W., Mass.
Butler, Rev. S. B., Mass.

C.

Calvin, Prof. Samuel, Iowa.
Canby, Wm. M., Del.
Carr, Dr. (Ezra ?), Cal.
Carrier, Rev. Joseph C., Ind.
Carruth, Prof. J. H., Kans.
Carson, Dr. Joseph, Pa. *Spec. Medical.*
Carter, Dr. Francis, Ohio.
Carter, J. J., Pa.
Carter, Miss Maria E., Mass.
Cassebeer, H. A., N. Y.
Cassells, Prof. J. Lang, Ohio.
Castelahn, Karl, Mass.
Chadbourne, Pres. Paul A., Mass.
Chapman, Dr. A. W., Fla. *Spec. Southern.*
Chickering, Prof. J. W., D. C.
Clark, Dr. Daniel, Mich.
Clark, Prof. Frank W., D. C.
Clark, Jas. H., R. I. *Carboniferous.*
Clark, Miss Mary H., Mich.
Clark, M. W., Mass.
Clark, R. B., Mass.
Clark, W. S., Mass.
Clinton, Judge G. W., N. Y.
Cochrane, Mrs. H. A., Mass. *Marine Algae.*
Coles, Isaac, N. Y.
Coleman, N., Mich.
Commons, A., Del.
Comstock, Frederic H., N. Y.
Comstock, Prof. T. B., Ohio.
Congdon, Joseph W., R. I.
Cook, Miss Mary, N. Y.
Cooper, Dr. J. G. Cal. *Spec. Trees.*
Cope, Prof. E. D., N. J.
Copeland, Prof. H. E., Wis.
Cormac, W. C., Br. Am. *Spec. Coniferae.*
Cornish, Alice F., Minn.
Coulter, J. M., D. C.
Court, Dr. I., W. I.
Covel, Mrs. Harriet, Iowa.
Coventry, Dr. J., N. Y.
Cowles, S. N., N. Y.
Cressman, Philip, Pa.
Crittenden, Claude, N. Y.
Crooke, J. J., N. Y.
Crosier, Dr. E. S., Ky.
Cummings, John, Mass.
Curtis, Dr. Josiah, Tenn.
Curtiss, A. H., Va.
Cushing, Henry W., Mass.
Cutting, Dr. H. A., Vt.

D.

Dahl, Christian, W. I.
Dame, Prof. Luther, Mass.
Dame, L. L., Mass.
Daniells, Prof. W. W., Wis.
Darby, Dr. John, Ky. *Spec. Southern.*
Darrach, Dr. J., Pa.
Davenport, Geo. E., Mass. *Spec. Filices.*
Davidson, W. J., N. Y.
Davis, Mrs. Abby, Mass. *Marine Algae.*
Davis, Chas. M., N. J.
Davis, J. Frank, N. Y.
Davis, Miss Mary E., Mass.
Davis, Miss N. J., Pa.
Davison, Miss Emily, Ky.
Dawson, Jackson, Mass.
Dawson, Dr. J. W., Br. Am. *Fossil.*
Day, David F., N. Y.
Day, Dr. W. De F., N. Y.
Dean, Dr. D. V., Mo.
Demcker, Robert, N. Y.
Denslow, Herbert, Ct.
Dickinson, Mrs. W. P., Iowa.
Doggett, Mrs. Wm. E., Ill.
Donhoff, A. V. Ky.
Dorsch, Dr. Edward, Mich.
Douglass, Dr. James S., Wis.
Dowd, Miss S. E., N. Y. *Spec. Cryptogameae.*
Drummond, A. T., Br. Am.
Dudley, W. R., N. Y.

E.

Eaman, Miss Mary, Mich.
Earle, Miss A. B., Mass.
Eaton, Prof. Daniel C., Ct. *Spec. Filices and Marine Algae.*
Edwards, Dr. A. M., N. J. *Diatomaceae, etc.*
Edwards, Miss Sara, Ct.
Edwards, Wm., Mass. *Spec. Filices.*
Ellis, J. B., N. J. *Spec. Fungi.*
Elmore, Samuel E., Ct.
Emerson, George B., Mass. *Trees.*
Emerton, James H., Mass. *Botanical Draughtsman.*
Endicott, Wm. E., Mass. *Cult. Spec. Bulbs and Climbers.*
Engelhardt, Prof. Francis E., N. Y.
Engelmann, Dr. George., Mo. *Spec. Vitis, Cactaceae, Loranthaceae, Coniferae, Yucca. Vide Gray's Man., Pref., etc.*
Ennis, Prof. Jacob, Pa.
Errington, Miss G., N. Y. *Spec. Californian.*
Eude, Dr. Charles, N. J.
Everett, Dr. O., Ill.

F.

Fales, Prof. J. C., Ky.
Farlow, Dr. Wm. G., Mass. *Spec. Lower Cryptogameae.*
Faxon, Edwin, Mass.
Faxon, C. E., Mass.
Faxon, Walter, Mass.
Fazel, J., N. Y. *Botanical Artist.*
Febiger, Christian, Del.
Fendler, Augustus, Del.
Fernald, C. H., Me.
Fischer, W. L., N. Y.
Fish, Geo. T., N. Y.
Fisher, Dr. G. J., N. Y.
Flint, Wm. F., N. H.
Foote, Lewis, Mich.
Forbes, S. A., Ill.
Fowler, Rev. James, Br. Am.
Fowler, Samuel P., Mass. *Trees.*
Francis, Dr. G. E., Mass.
French, Prof. G. H., Ill.
Fritchey, J. Q. A., Mo.
Frœbel, C. H., N. Y.
Frost, Prof. S. T., N. Y.
Frost, Chas. C., Vt. *Spec. Cryptogameae.*
Fuller, A. S., N. J. *Spec. Cult.*
Fuller, C. B., Me.
Fuller, Joseph, N. Y.

G.

Garber, A. P., Pa.
Gay, Dr. C. C. F., N. Y.
Gentry, T. G., Pa.

Gerard, C. B., N. Y.
Gerard, W. R., N. Y. *Spec. Fungi.*
Gibbes, L. E., S. C.
Gibbons, Dr. Wm. P., Cal.
Gilbert, Benj. D., N. Y. *Spec. Filices.*
Gilbert, Mrs. E. J. C., N. H.
Gillman, Henry, Mich.
Gindra, Mr. —, N. Y. *Spec. Cult. Filices and Orchidaceae.*
Goodale, Prof. Geo. L., Mass.
Gould, John S., N. Y.
Grant, J. M., Neb.
Gray, Dr. Asa, Mass.
Green, Dr. C., N. Y.
Green, Prof. Traill, Pa.
Greene, A. C., Md.
Greene, Rev. E. L., Col.
Gross, Dr. O. R., N. Y.
Guerineau, Louis, Mass. *Spec. Cult.*
Gundlach, Juan (Johannes), W. I.
Gwathmey, R. C., Ky.

H.

Hale, Dr. E. M. Ill. *Spec. Medical.*
Hall, Prof. E., Kans.
Hall, Elihu, Ill.
Hall, Franklin, W., Ct.
Hall, I. H., N. Y.
Hallock, Prof. L. W., N. Y.
Hallowell, Miss Susan M., Me.
Hankenson, E. L., N. Y.
Harbour, G. P., Iowa. *Spec. Rocky Mountain.*
Harrington, Prof. M. W., Mich. *Spec. Colorado and Alaska.*
Hartley, Fielden, Ill.
Hartt, Prof. C. F., N. Y. *Fossil. Spec. Devonian.*
Harvey, Wm., Ala.
Haskell, Miss C. C., N. Y. *Spec. Filices.*
Hassler, Dr. F. A., Pa.
Hayden, Prof. F. V., D. C. *Spec. Upper Missouri.*
Hayes, Prof. B. F., Me.
Hazeltine, Dr. G. W., N. Y.
Healy, Dr. E. P., N. Y.
Hedge, F. H., Jr., Mass.
Herrick, M. L., Vt.
Hertzog, Dr. ——, Md.
Hervey, E. W., Mass.
Hess, Dr. Robert J., Pa.
Hexamer, Dr. F. M., N. Y.
Hiffelman, M. E., Md.
Hilgard, Prof. E. W., Mich.
Hilgard, Dr. Theodore C., Me. *Spec. Cryptogameae.*
Hill, Prof. E. J., Ill.
Hillebrand, Dr. Wm., Heidelberg, Germ.
Hills, N., Mass.
Hitchcock, Prof. C. H., N. H.
Hitchcock, Miss Mary, N. H. *Spec. Filices.*
Hitchings, E. H., Mass. *Spec. Filices.*
Hochstein, A. H., N. J. *Botanical Artist.*
Hogg, Jas., N. Y. *Spec. Cult. Japan.*
Hollister, G. H., Ct.
Holmes, E. S., N. Y.
Holmes, Miss Mary E., Ill.
Holton, Dr. I. F., Mass. *Spec. New Grenada.*
Holzer, Rev. L.
Hooper, Mrs. Nancy S., N. Y.
Hoopes, Josiah, Pa. *Spec. Coniferae.*
Horner, Mrs. C. N. S., Mass.
Horr, Dr. Asa, Iowa.
Hosmer, Miss Abbie, Mass.
Hosmer, Miss Eliza, Mass.
Hosmer, Miss Jane, Mass. *Spec. Filices.*
Hough, Franklin B., N. Y.
How, Prof. Henry, Br. Am.
Howard, W. J., N. Y. *Spec. Rocky Mountain.*
Howe, Dr. Elliott C., N. Y. *Spec. Fungi.*
Howland, Mrs. Frances, N. J.
Hoysrodt, L. H., N. Y.
Hubbard, Mrs. Sara A., Ill.
Hume, Prof. Gilbert L., N. Y. *Spec. Cult. Filices.*
Hunt, Edwin, N. Y.
Hunt, George, R. I.
Hunt, Dr. J. G., Pa. *Spec. Vegetable Anatomy.*
Huntington, J. H., N. H.
Hurd, Prof. A., Ill.
Hussey, Rev. John, Ohio. *Spec. Filices.*
Hyatt, Prof. James, N. Y.
Hyatt, J. B., N. Y.

I.

Ingraham, Robert, Mass. *Cryptogameae.*

J.

Jacobi, Dr. Mary Putnam, N. Y. *Medical.*
Jack, Dr. Louis, Pa.
Jack, Peter, Br. Am. *Cult. Coniferae and other Trees.*
Jackson, Halliday, Pa.
James, Prof. Thos. P., Mass. *Spec. Musci.*
Jenks, C. W., Mass.
Jesup, Rev. H. G., Mass. *Spec. Salices.*
Johnson, Miss Amy E., N. Y.
Johnson, Dr. H. A., Ill.
Jones, Lloyd, Br. Am.
Joor, Dr. J. F., La. *Southern.*
Jordan, Prof. D. S., Wis. *Spec. Nov. Eborac. and Algae.*
Jordan, Miss Mary E., Ill.

K.

Keenerg, Mrs. N. B., N. Y.
Keeler, H. D., Fla.
Kellerman, W. A., N. Y.
Kellogg, Dr. A., Cal.
Kemp, Prof. A. F., Ill.
Kerr, Prof. W. C., N. C. *Fossil. Spec. Triassic.*
Kilvington, Robt., Pa. *Spec. Cult.*
Kirtland, Dr. Jared P., Ohio.
Klippard, John H., Ohio.
Knapp, C., Mass.
Knighton, Rev. Frederic, N. J.
Knipe, Rev. S. W., Pa.
Knott, W. T. Ky.
Krebs, Henry, W. I.
Kumlien, Thure, Wis.
Kunze, Dr. R. E., N. Y. *Spec. Medical.*

L.

Lapham, I. A., LL.D., Wis.
Lawrence, Miss S. L., Mass.
Lawson, Prof. Geo., Br. Am.
Lawton, Miss Emily, Iowa. *Botanical Artist.*
Leffman, Dr., Pa.
Leggett, Wm. H., N. Y. *Spec. Lecheae and Solidagines.*
Leidy, Prof. Joseph, Pa.
Lemmon, J. G., Cal.
Le Roy, P. V., N. Y.
Lesley, Prof. J. P., Pa. *Fossil.*
Lesquereux, Prof. Leo, Ohio. *Musci and Fossil.*
Lindheimer, Ferdinand, Texas.
Lindsay, A. W. H., Br. Am.
Little, Dr. Geo., Miss.
Livingston, Prof. Wm., Ill.
Lockwood, Rev. Samuel, N. J.
Long, Dr. J. F., Pa.
Lord, H. B., N. Y.

Loring, Dr. Starling, Ohio.
Lowrie, J. R., Pa.
Lyons, Dr. A. B., Mich.
Lusk, Rev. Mrs., Mass. *Filices and Algae.*

M.

Macoun, Prof. John, Br. Am. *Spec. Br. Am. and Carices.*
Mackay, A. H., Br. Am.
March, W. T., W. I.
Marshall, M. A., Ct.
Martin, Prof. D. S., N. Y.
Martindale, Isaac C., N. J.
Mason, O. A., Mass.
Matthew, Geo. F., Br. Am.
Matthews, Dr. Wm., Dakota.
Maxwell, S. M., N. Y.
McCord, D. R., Br. Am. *Canadian Filices.*
McElroy, Miss Rose, Ky.
McIntyre, B. F., N. Y.
McKiernan, George S., Ind.
McNeil, John A., N. Y.
Mead, Dr. S. B., Ill.
Meehan, Thos., Pa. *Spec. Cult.*
Mellichamp, Dr. J. H., S. C.
Merriam, Jas. S., N. Y.
Merrill, Prof. Geo. C., Kans.
Michener, Dr. Ezra, Pa.
Miller, E. S., N. Y.
Milligan, Mrs. J. M., Ill.
Millington, Mrs. L. A., N. Y.
Mills, Miss Jennie, Mass.
Mohr, Ch., Ala.
Monks, Miss Sarah P., N. Y.
Moore, Prof. Joseph, Ind.
Morales, Dr. Sebastian Alfredo de, W. I.
Morgan, R. T., Ill.
Morris, O. W., N. Y.
Morse, Miss E. S., Mass.
Morse, Dr. L. D., Mo.
Moyer, Dr. I. S., Pa.
Mudge, Prof. B. F., Kans.
Muir John, Cal.
Muir, Wm., Mo. *Spec. Cult.*
Mundy, E. W., N. Y.
Murphy, C. P., N. Y.
Murtfeldt, Mary E., Mo.

N.

Nason, Prof. Henry B., N. Y.
Neissler, Hugh M., Ga.
Nevius, Rev. R. D., Oregon.
Newberry, Dr. J. S., N. Y., *Spec. Fossil.*
Norton, Miss M. E. B., Ill.
Norton, Dr. O. D., Ohio.
Nott, Rev. John W., Md. *Spec. Mountain.*

O.

Olney, Stephen T., R. I. *Spec. Cyperaceae.*
Orne, John, Mass.
Orton, Presd. Edward, Ohio.
Orton, Prof. James, N. Y. *Fossil.*
Orton, Dr. J. G., N. Y.
Osborne, Dr. C. S., N. Y.
Owen, Mrs. V. L., Mass.

P.

Paine, Rev. John A. Jr., N. Y.
Palmer, Dr. Edward, Mass.
Papineau, Edwin A., Kans.
Parker, Chas. F., N. J.
Parker, Thos. J., N. Y.
Parker, Prof. Wm. A., Mass.
Parry, Dr. C. C., Iowa. *Spec. Rocky Mountain.*
Parsons, S. B., N. Y. *Cult.*
Parvin, Prof. T. L., Iowa.
Patterson, H. N., Ill.
Pech, E., Ill.
Peck, Chas. H., N. Y. *Spec. Fungi.*
Peck, Rev. David, Mass.
Perkins, Prof. Geo. H., Vt.
Peter, Prof. Robert, Ky.
Peters, Dr. C. H. F., N. Y.
Peters, Thomas M., Ala.
Phelps, Dr. Edward E., Vt. *Medical.*
Phippen, Geo. D., Mass. *Spec. Cultivated North American.*
Pike, Nicholas, N. Y. *Algae.*
Piper, Mrs. S. M., Mass.
Pittenger, Rev. Wm., N. J. *Microscopic.*
Pollard, F. A., N. Y.
Pool, Isaac A., Ill. *Cult.*
Pooley, Dr. J. H., N. Y.
Pope, Chas. H., Ky.
Porter, Prof. Thos. C., Pa.
Potter, Prof. B. S., Ill.
Pratt, Minot, Mass.
Prentiss, Prof. A. N., N. Y.
Presas, Manuel J., W. I.
Pringle, C. G., Vt. *Spec. Flora West Vt.*
Puissant, P. A., N. Y.
Putnam, F. W., Mass. *Naturalist's Agency.*

R.

Ralston, Prof. J. G., Pa.
Rand, E. S. Jr., Mass. *Cult. Spec. Orchids and Bulbs.*
Rand, Wm. H., Ill.
Rau, Eugene A., Pa.
Rau, Robert, Pa.
Rauch, Dr. J. H., Ill.
Ravenel, H. W., S. C. *Spec. Fungi.*
Redding, Thomas B., Ind.
Redfield, John H., Pa.
Reverchon, J., Tex.
Reynolds, Miss Mary C., Fla.
Richards, James, Ct.
Richardson, W. Allan, Ky.
Ridgway, Robert, Ind.
Riley, Prof. C. V., Mo.
Robbins, Dr. J. W., Mass.
Roberts, C. H., Minn.
Robinson, John, Mass. *Filices.*
Rockwell, Rev. Mrs. Charles, N. Y.
Root, Prof. Oren, N. Y.
Ross, Waldo, Mass. *Cult. Cactaceae and Succulents.*
Rothrock, Dr. Joseph T., Pa.
Rounds, C. C., Ct.
Roy, Mrs. Wm., Br. Am. *Spec. Filices and Musci.*
Ruger, M., N. Y.

S.

Sager, Prof. Abram, Mich.
Salisbury, Prof. J. H., Ohio. *Fungi.*
Sargent, Chas. Sprague, Mass. *Spec. Cult.*
Saunders, Wm., Br. Am.
Saunders, Wm., D. C. *Cult.*
Sauvalle, Francisco Adolfo, W. I.
Saurman, Dr. B. F., Fla.
Scarborough, George, N. J.
Schaan, Dr. Felix, Ill.
Schott, Dr. Arthur, D. C. *Spec. Mexican and Central American.*
Scofield, Samuel L., N. Y.
Scott, J. G., Mass.
Scribner, F. Lamson, Me. *Spec. Gramineas and Carices.*
Seal, Thomas, F., Pa.
Seaman, W. H., D. C.

Seeyle, Rev. Mrs. S. T., N. Y. *Spec. Marine Algae.*
Sewell, Dr. J. A., Ill.
Shaffer, Dr. Charles, Pa.
Shattuck, Miss Lydia W., Mass. *Spec. Filices.*
Shattuck, Miss M. M.
Shaw, Henry, Mo. *Spec. Cult.*
Sheldon, Prof. D. S., Iowa.
Shepley, Henry, Ill.
Sherman, J., Mass.
Sherman, Dr. Lewis, Wis.
Shoop, Rev. Darius R., Mich.
Shriver, Howard, Va. *Spec. Solidagines.*
Siedolf, Dr. Charles, N. J. *Spec. Cult.*
Sinclair, J., Pa.
Skinner, Dr. A. G., N. Y.
Smith, Aubrey, H., Pa.
Smith, Prof. C., Wash. Ter.
Smith, Chas. E., Pa.
Smith, Daniel B., Pa.
Smith, Dr. George, Del.
Smith, Prof. H. L., N. Y. *Spec. Diatom and Desmid.*
Smith, Sarah E., Mass.
Smith, W. R., D. C.
Snow, Prof. Frank H., Kans.
Sprague, C. J. Mass. *Fungi.*
Sprague, Isaac, Mass. *Botanical Artist.*
Stabler, Dr. R. H., Va.
Standish, Mrs. J. V., Ill. *Spec. Cult.*
Stauffer, Jacob, Pa.
Stephenson, Rev. James, Md.
Stevens, Dr. George T., N. Y.
Steward, Dr. J. T., Ill.
Stillwell, C. M., N. Y.
Stiver, Dr. Charles A., Cal.
Sturton, Samuel, Br. Am.
Sullivant, Jos. E., Ohio.
Sutten, G. B., N. Y.
Swallow, Prof. G. C., Mo.
Sweezy, Mrs. John C., N. Y.
Swift, Henry M., N. Y.

T.

Tatnull, Edward, Del.
Tegen, John F., Ad., *Spec. Cult.*
Tenney, Prof. Sanborn, Mass.
Thomas, John J., N. Y.
Thurber, Prof. Geo., N. Y. *Spec. Cult. and Gramineae.*
Thurston, Louise M., Mass.
Townsend, J. L., Utah.
Townshend, Dr. Norton S., Ohio.
Tracy, C. M., Mass.
Treat, Mrs. Mary, N. J.
Trippe, Miss Ella F., R. I.
Trippe, T. Martin, N. J.
Tryon, Geo. W., Jr., Pa.
Tuckerman, Prof. Ed., Mass. *Spec. Lichenes.*
Tuthill, Frank H., Mich.
Tutwiler, Miss Julia S., Ala. *Spec. Filices.*

U.

Upham, Warren, N. H.

V.

Van Brunt, C., N. Y.
Van Gieson, Rev. A. P., N. Y.
Van Vleck, B. H., Wis.
Vasey, Dr. Geo., D. C.
Vinal, Rev. C. C., Me. *Cult. Filices.*
Vose, Jas. E., N. H.

W.

Walker, C. A., Mass. *Botanical Draughtsman.*
Wall, J. L., N. Y.
Ward, Jas. W., N. Y.
Ward, Dr. R. H., N. Y. *Spec. Microscopic.*
Ward, Rev. W. H., N. Y.
Warder, Dr. J. A., Ohio.
Warne, H. A., Ill.
Waring, W. G., Pa.
Warren, Rev. —, Ohio.
Watson, Sereno, Mass. *Spec. Western.*
Watt, David A. P., Br. Am. *Spec. Acrogens.*
Wellman, C. P., Ill.
Wheeler, Charles F., Mich.
Whitman, A. G., Mass.
Whittem, Wm. A., Pa.
Whittington, Miss Mary, Ky.
Whorf, Edward H., Mass. *Spec. Filices.*
Wibbe, Rev. Father Herman, Th. D., N. Y.
Wilber, G. M., N. Y.
Wilcoxson, Dr. L. D., Ct.
Wilkins, Daniel, N. H.
Willey,—— N. Y.
Willey, H., Mass. *Lichenes.*
Williams, John, Ill.
Williamson, John, Ky.
Willis, Prof. O. R., N. Y.
Wilson, Miss D., N. Y.
Wilson, Hugh, Mass. *Cult. Spec. Filices.*
Wilson, James, Kans. *Spec. Filices.*
Wilson, Miss M. L., N. Y.
Wilson, Nathaniel, W. I.
Winchell, Dr. Alexander, N. Y.
Winchell, Prof. N. H., Minn.
Wirt, I. R., Pa.
Wister, W. Wynne, Pa.
Wolf, John, Ill.
Wolle, Rev. Francis, Pa.
Wood, Prof. Alphonso, N. Y.
Wood, Charles, Ill.
Wood, Prof. H. C., Jr., Pa. *Spec. Fresh-water Algae.*
Wood, Mary E., Cal. *Marine Algae.*
Woodward, Dr., D. C. *Microscopic.*
Woolson, Geo. C., N. Y. *Spec. Cult.*
Woolson, M., N. H. *Spec. Woods.*
Wright, Charles, Ct. *Spec. Cuban, Texan and New Mexican.*
Wright, R. M., Mass.
Wright, Dr. Samuel H., N. Y.

X.

Xantus, L. J., Pesth, Hungary. (Mexico, *fide Eaton.*

Y.

Youmans, Miss Eliza, N. Y.
Young, A. H., Ind.
Young, A. R., N. Y. *Marine Algae.*
Young, Henri W., N. Y. *Spec. Cyperaceae and Gramineae.*
Young, Mrs. M. J., Texas.

PART II.

BRITISH AMERICA.

Bailey, Prof. L. W., Fredericton, N. B.
Barnston, G., Montreal.
Bell, Prof. Robert, Canada West.
Cormac, W. C., New Westminster, Br. Columbia.
Dawson, Principal J. W., LL.D., McGill University, Montreal, Can.
Drummond, A. T., Montreal, Canada.
Fowler, Rev. James, Bass River, N. B.
How, Prof. Henry, Windsor, N. S.
Jack, Peter, Halifax, N. S.
Jones, Lloyd, Victoria, Br. Columbia.
Lawson, Prof. Geo., Halifax, N. S.
Lindsay, A. W. H., Halifax, N. S.
Mackay, A. H., Pictou, N. S.
Macoun, Prof. John, Belleville, C. W.
Matthew, Geo. F., Custom House, St. John, N. B.
McCord, D. R., Montreal, Canada.
Roy, Mrs. Wm., Owen Sound, Ontario, Can.
Saunders, Wm., Dundas St., London, C. W.
Sturton, Samuel, Quebec, Canada.
Watt, David A. P., Montreal, Canada.

UNITED STATES.

ALABAMA.

Harvey, Wm., Mobile.
Mohr, Ch., Mobile.
Peters, Thomas M., Moulton.
Tutwiler, Miss Julia S., Havana P. O. *Absent in Europe.*

CALIFORNIA.

Ames, Mrs. Mary E. P., Taylorsville, (Indian Valley,) Plumas Co.
Anderson, Dr. C. L., Santa Cruz.
Bloomer, H. G., San Francisco.
Bolander, Prof. H. N., San Francisco.
Carr, Dr. (Ezra ?), San Francisco?
Cooper, Dr. J. G., San Francisco.
Gibbons, Dr. Wm. P., Alameda.
Kellogg, Dr. A., San Francisco.
Lemmon, J. G., Sierraville, Sierra Co.
Muir, John, Yosemite Valley.
Stiver, Dr. Chas. A., San Francisco.
Wood, Mary E., Santa Cruz.

COLORADO.

Brandegee, Townshend S., Canon City.
Boyd, David, Greeley.
Greene, Rev. E. L., Pueblo (or Greeley ?).

COLUMBIA (District of) TERRITORY.

Antisell, Prof. Thos., M. D., Washington. (Expected back from Japan by next Summer.)
Austin, E. P., Washington.
Billings, Dr. J. S., U. S. Army, Washington.
Chickering, Prof. J. W., Washington.
Clark, Prof. Frank W., Howard Univ., Washington.
Coulter, J. M., Washington.
Hayden, Prof. E. V., Washington.
Saunders, Wm., Dept. of Agric., Washington.
Schott, Dr. Arthur, Georgetown.
Seaman, W. H., Dep. of Agric., Washington.
Smith, W. R., U. S. Bot. Garden, Washington.
Vasey, Dr. Geo., Dep. of Agric., Washington.

CONNECTICUT.

Alcott, Rev. W. P., Greenwich.
Allen, Dr. T. F., Litchfield.
Barratt, Dr. Joseph, Middletown.
Brewer, Prof. Wm. H., New Haven.
Denslow, Herbert, New Canaan.
Eaton, Prof. Daniel C., New Haven.
Edwards, Miss Sara, New Haven.
Elmore, Samuel E., Hartford.
Hall, Franklin W., New Haven.
Hollister, G. H., Litchfield.
Marshall, M. A., New Haven.
Richards, James, Litchfield.
Rounds, C. C., Farmington.
Wilcoxson, Dr. L. D., Box 386, P.O., New Haven.
Wright, Charles, Wethersfield.

DAKOTA.

Dr. W. Matthews ?

DELAWARE.

Canby, Wm. M., 1101, Delaware Ave, Wilmington.
Commons, A., Centreville, New Castle Co.
Fendler, Augustus, Seaford.
Febiger, Christian, New Castle Co.
Smith, Dr. Geo., Darby.
Tatnall, Edward, Wilmington.

FLORIDA.

Chapman, Dr. A. W., Apalachicola.
Keeler, H. D., Jacksonville.
Reynolds, Miss Mary C., St. Augustine.
Saurman, Dr. B. F., Apalachicola.

GEORGIA.

Berckmans, P. J., Augusta.
Neissler, Hugh M., Butler, Taylor Co.

ILLINOIS.

Atwater, Mrs. E. E., Chicago.
Bean, Thos. E., Galena.
Bebb, M. S., Fountaindale, Winnebago Co.
Brendel, Dr. Frederick, Peoria.
Burrill, Prof. T. J., Urbana.
Doggett, Mrs. Wm. E., Chicago.

Everett, Dr. O., Dixon, Lee Co.
Forbes, S. A., Normal.
French, Prof. G. H., Ill. Agric. Coll., Irvington.
Hale, Dr. E. M., Chicago.
Hall, Elihu, Athens, Menard Co.
Hartley, Fielden, Alton.
Hill, Prof. E. J., Kankakee.
Holmes, Miss Mary E., Rockford.
Hubbard, Miss Sara A., office of *Evening Post*, 86, Dearborn St., Chicago.
Hurd, Prof. A., Galesburg.
Johnson, Dr. H. A., Chicago.
Jordan, Miss Mary E., Decatur.
Kemp, Prof. A. G., Galesburg.
Livingston, Prof. Wm., Galesburg.
Mead, Dr. S. B., Augusta, Hancock Co.
Milligan, Mrs J. M., Box 458, Jacksonville.
Morgan, R. T., Wheaton.
Norton, Miss M. E. B., Rockford.
Patterson, H. N., Oquawka, Henderson Co.
Pech E., Chicago.
Pool, Isaac A., 829, Washington St., Chicago.
Potter, Prof. B. S., Springfield.
Rand, Wm. H., Chicago.
Rauch, Dr. J. H., Chicago.
Schaan, Dr. Felix, Chicago.
Sewell, Dr. J. A., Normal.
Shepley, Henry, Canton, Fulton Co.
Standish, Mrs. J. V., Galesburg.
Steward, Dr. J. T., Peoria.
Warne, H. A.
Wellman, C. P., Maquon.
Williams, John, Fountaindale.
Wolf, John, Canton, Fulton Co.
Wood, Charles, Augusta, Hancock Co.

INDIANA.

Carrier, Rev. Joseph C., Notre Dame P.O.
McKiernan, Geo. S., New Albany.
Moore, Prof. Joseph, Richmond.
Redding, Thos. B., Newcastle.
Ridgway, Robert.
Young, A. H., Hanover.

IOWA.

Arthur, J. C., Charles City.
Babcock, H. H., removed from Chicago.
Bessey, C. E., Prof. Iowa Agric. Coll., Ames.
Calvin, Prof. Samuel, Iowa City.
Covel, Mrs. Harriet, Dubuque.
Dickinson, Mrs. W. P., Dubuque.
Harbour, G. P., Oskaloosa.
Horr, Dr. Asa., Dubuque.
Lawton, Miss Emily, Dubuque.
Parry, Dr. C. C., Davenport.
Parvin, Prof. T. L., Iowa City.
Sheldon, Prof. D. S., Davenport.

KANSAS.

Carruth, Prof. J. H., Lawrence.
Hall, Prof. E.
Merrill, Prof. Geo. C., Topeka.
Mudge, Prof. B. E., Manhattan.
Papineau, Edwin A., Topeka.
Snow, Prof. Frank H., Lawrence.
Wilson, James, Leavenworth.

KENTUCKY.

Beatty, Dr. Ormond, Centre College, Danville.
Belknap, W. R., 112, Walnut St., Louisville.
Crosier, Dr. E. S., Custom House, Louisville.
Darby, Dr. John, Kentucky University.
Davison, Miss Emily, 300, Walnut St., Louisville.
Donhaff, A. V., 27, Jefferson St., Louisville.
Fales, Prof. J. C., Centre College, Danville.
Gwathmey, R. C., 104, Green St., Louisville.
Knott, W. T., Lebanon.
McElroy, Miss Rose, Lebanon.
Peter, Prof. Robert, Lexington.
Pope, Chas. H., 331, 8th St., Louisville.
Richardson, W. Allan, Louisville.
Whittington, Miss Mary, Harrodsburg.
Williamson, John, 63, Market St., Louisville.

LOUISIANA.

Joor, Dr. J. F., Baton Rouge.

MAINE.

Fernald, Prof. C. H., Orono.
Fuller, C. B., Curat. Nat. Hist. Soc., Portland.
Hallowell, Miss Susan M., Bangor.
Hayes, Prof. B. F., Lewiston.
Hilgard, Prof. Theo. C., U. S. Coast Survey.
Scribner, F. Lamson, Augusta.
Vinal, Rev. C. C., Kennebunk.

MARYLAND.

Breckenridge, W. J., Govanstown.
Greene, A. C., Frostburg.
Hertzog, Dr., Baltimore.
Hiffelman, M. E., Hagerstown.
Nott, Rev. John W., Mount Savage Alleghany Co.
Tegen, John F., Frostburg.
Stephenson, Rev. James, St. Inigo's, St. Mary's Co.

MASSACHUSETTS.

Alger, R. F., Dedham.
Anderson, Miss Susan E., Shelburne.
Bacon, Austin, Natick.
Bigelow, Dr. Jacob, Boston.
Biscoe, Prof. T. D., Westborough.
Bolles, Rev. E. C., Salem.
Boott, Wm., Boston.
Bowen, Miss Susan, South Hadley.
Bray, Mrs. Maria H., West Gloucester.
Burbank, Prof. I. S.
Burr, Fearing, Hingham.
Buswell, E. W., Boston.
Butler, Rev. S. R., Northampton?
Carter, Miss Maria E., Woburn.
Castelahn, Karl.
Chadbourne, Pres. Paul A., Williamstown.
Clark, M. W., Hingham.
Clark, R. B., Fitchburg.
Clark, Pres. W. S., Agric. Coll., Amherst.
Cochrane, Mrs. H. A., Gloucester.
Cummings, John, Woburn.
Cushing, Henry W., 40, State St., Boston.
Dame, Prof. Luther, Newburyport.
Dame, L. L., Stoneham.
Davenport, Geo. E., 8, Province St., Boston.
Davis, Mrs. Abby, Gloucester.
Davis, Miss Mary E., East Somerville.
Dawson, Jackson, Forest Hills.
Earle, Miss A. B., Worcester.
Edwards, Wm., South Natick.
Emerson, Geo. B., Boston.
Emerton, James H., Salem.
Endicott, Wm. E., Canton.
Farlow, Dr. Wm. G., Cambridge. *Absent in Europe.*
Faxon, Edwin, Boston.
Faxon, C. E., 136, Broad St., Boston.
Faxon, Walter, Cambridge.
Fowler, Samuel P., Danvers.
Francis, Dr. G. E., Worcester.
Goodale, Prof. Geo. L., Cambridge.
Gray, Dr. Asa, Botanic Garden, Cambridge.
Guerineau, Louis, Botanic Garden, Cambridge.

Hedge, F. H., Jr., Cambridge.
Hervey, E. W., New Bedford.
Hills, N., Lynn.
Hitchings, E. H., 40, Chambers St., Boston.
Holton, Rev. I. F., Everett.
Horner, Mrs. C. N. S., Georgetown.
Hosmer, Miss Abbie, Concord.
Hosmer, Miss Eliza, Medford.
Hosmer, Miss Jane, Concord.
Ingraham, Robert, New Bedford.
James, Prof. Thos. P., Cambridge.
Jenks, C. W., Boston.
Jesup, Rev. H. G., Amherst.
Knapp, C., Girls' Normal School, Boston.
Lawrence, Miss M. L., Worcester.
Lusk, Rev. Mrs., Uxbridge.
Mason, O. A., Medway.
Mills, Miss Jennie, Waltham.
Morse, Miss E. S., Worcester.
Orne, John, Cambridge.
Owen, Mrs. V. L., Springfield.
Palmer, Dr. Edward, Peabody Museum, Cambridge.
Parker, Prof. Wm. A., Amherst.
Peck, Rev. David, Sunderland.
Phippen, Geo. D., Salem.
Piper, Mrs. S. M., Toliand.
Pratt, Minot, Concord.
Putnam, F. W., Naturalist's Agency, Salem.
Rand, E. S., Jr., Glen Ridge, Dedham.
Robbins, Dr. J. W., Uxbridge.
Robinson, John, Salem.
Ross, Waldo, Jamaica Plain.
Sargent, Chas. Sprague, Brookline.
Scott, J. G., Westfield.
Seeyle, Rev. Mrs. S. T., East Hampton.
Sherman, J., Medford.
Shattuck, Miss Lydia W., South Hadley.
Smith, Sarah E., Waltham.
Sprague, C. J., Boston.
Sprague, Isaac, Grantville.
Tenney, Prof. Sanborn, Williamstown.
Thurston, Louise M., Lexington.
Tracy, C. M., Lynn.
Tuckerman, Prof. Ed., Amherst.
Walker, C. A., 220, Broadway, Chelsea, Box 35, P.O.
Watson, Sereno, Botanic Garden, Cambridge.
Whitman, A. G., Boston.
Whorf, Edward H., Boston.
Willey, H., New Bedford.
Wilson, Hugh, Salem.
Wright, R. M., Williston Seminary, East Hampton.

MICHIGAN.

Allmendinger, Miss E. C., Ann Arbor.
Beal, Prof. Wm. J., Agric. Coll., Lansing.
Bigelow, Dr. J. M., Detroit.
Clark, Dr. Daniel, Flint.
Clark, Miss Mary H., P. O. Box 169, Ann Arbor.
Coleman, N., Grand Rapids.
Dorsch, Dr. Edward, Monroe.
Eaman, Miss Mary, 25, Henry St., Detroit.
Foote, Lewis, Detroit.
Gillman, Henry, 80, Elizabeth St., West Detroit.
Harrington, Prof. M. W., Ann Arbor.
Lyons, Dr. A. B., 54, Fort St., West Detroit.
Sager, Prof. Abram, Ann Arbor.
Shoop, Rev. Darius R., Bellevue.
Tuthill, Frank H., Kalamazoo.
Wheeler, Charles F., Hubbardston, Ionia Co.

MINNESOTA.

Cornish, Alice F., St. Paul.
Roberts, C. H., Rochester.
Winchell, Prof. N. H., St. Anthony's.

MISSISSIPPI.

Little, Dr. Geo., Oxford.

MISSOURI.

Broadhead, G. C., Pleasant Hill.
Dean, Dr. D. V., St. Louis.
Engelmann, Dr. Geo., St. Louis.
Fritchey, J. Q. A., St. Louis.
Morse, Dr. L. D., Kirkwood.
Muir, Wm., Fox Creek P.O., St. Louis Co.
Murtfeldt, Mary E., Kirkwood.
Riley, Prof. C. V., State Entomologist, Room 29, S.E. corner of 5th and Olive Sts., St. Louis.
Shaw, Henry, St. Louis.
Swallow, Prof. G. C., Columbia, Boone Co.

NEBRASKA.

Aughey, Prof. Samuel, Lincoln.
Grant, J. M., Crowellton, Buffalo Co.

NEW HAMPSHIRE.

Barrows, Dr. Nathan, Meriden.
Blanpied, B. T., Hanover.
Flint, Wm. F., Richmond.
Gilbert, Mrs. E. J. C., Keene.
Hitchcock, Prof. C. H., Hanover.
Hitchcock, Miss Mary, Hanover.
Upham, Warren, Nashua.
Vose, James E., Francestown.
Wilkins, Daniel, Littleton.
Woolson, M., Concord.

NEW JERSEY.

Apgar, Prof. A. C., Trenton.
Austin, C. F., Closter.
Blanchard, Edward R., Bergen. (413, Broadway, N. Y.)
Boice, Miss Carrie A., Camden.
Bourquin, Frederic, Camden.
Brown, R. Willis, Box 2, Keyport.
Cope, Prof. E. D., Haddenfield.
Davis, Chas. M., Bloomfield.
Edwards, Dr. A. M., 241, Broad St., Newark.
Ellis, J. B., Newfield.
Eude, Dr. Charles, corner of 7th and Washington Sts., Hoboken.
Fuller, A. S., Ridgewood.
Hochstein, A. H., 58, 7th St., Hoboken.
Howland, Mrs. Francis, Engelwood.
Knighton, Rev. Frederic, Cranberry, Mercer Co.
Lockwood, Rev. Samuel, Freehold, Monmouth Co.
Martindale, Isaac C., National State Bank, Camden.
Parker, Chas. F., Camden.
Pittinger, Rev. Wm., Vineland.
Scarborough, George, Vineland.
Siedolf, Dr. Chas., North Hoboken.
Treat, Mrs. Mary, Vineland.
Trippe, T. Martin, Orange.

NEW YORK.

Allen, Dr. T. F., 3, E. 33d St., New York.
Andrews, Dr. T. L., Niagara Falls.
Armsby, Dr. J. H., Albany.
Averill, Horace, 151, Washington St., Brooklyn.
Bagg, Dr. M. M., Utica.

Baily, Dr. Cady, Chatham, Columbia Co.
Barstow, Dr. J. W., Sanford Hall, Flushing, Queens Co.
Bates, Dr. Joseph, New Lebanon Spa, Columbia Co.
Beauchamp, Miss M. E., Skaneateles.
Beauchamp, Rev. M. W., Kings Ferry, Cayuga Co.
Both, Dr. Carl, till next summer, Rochester. Home in Boston, Mass.
Bourquin, Mr. — Newburgh, Orange Co.
Bowen, Mrs. W. C., Skaneateles.
Bower, Wm., 53, Fulton St., N. Y.
Bradley, Dr. S. B.? West Greece, Monroe Co.
Brainerd, Geo. B., 23, Lafayette Ave., Brooklyn.
Brevoort, J. Carson, Brooklyn.
Brownne, Robert H., Lyceum Nat. Hist., 64, Madison Ave., N. Y.
Buchanan, I., 9,W. 17th St., N. Y.
Bumstead, Dr. F. J., 32, W. 26th St., N. Y.
Burgess, Edward S., Panama, Chatauqua Co.
Cassebeer, H. A., 9th St. and 4th Ave., N. Y.
Clinton, Judge G. W., Buffalo.
Coles, Isaac, Glen Cove, Queens Co.
Comstock, Frederic H., 240, E. 23d St., New York.
Cook, Miss Mary, Bridge Hampton, Suffolk Co.
Coventry, Dr. J., Newark, Wayne Co.
Cowles, S. N., Otisco, Onondaga Co.
Crittenden, Claude, Athenæum Library, Rochester.
Crooke, J. J., 163, Mulberry Street, New York.
Davidson, W. J., Box 191, P.O., Brooklyn.
Davis, J. Frank, River Head, Suffolk Co.
Day, David F., Buffalo.
Day, Dr. W. De F., 56, E. 34th Street, New York.
Demcker, Robert, 124, E. 92nd St., New York.
Dowd, Miss S. E., 3, S. Union St., Rochester.
Dudley, W. R., Cornell University, Ithaca.
Englehardt, Prof. Francis E., Syracuse.
Errington, Miss G., Townsend Ave., Clifton, Richmond Co.
Fazel, J., 245, Broadway, New York.
Fischer, W. L., Florist, 8th Ave. and 128th St., New York.
Fish, Geo. T., 35, Arcade, Rochester.
Fisher, Dr. G. J., Sing Sing.
Froebel, Prof. C. H., College of Pharmacy, University Building, N. Y.
Frost, Prof. S. T., Amenia, Dutchess Co.
Fuller, Joseph, Rochester.
Gay, Dr. C. C. F., Buffalo.
Gerard, C. B., Poughkeepsie.
Gerard, W. R., Poughkeepsie.
Gilbert, Benj. D., Utica.
Glndra, Mr.—, Poughkeepsie.
Gould, John S., Hudson.
Green, Dr. C., Homer.
Gross, Dr. O. R., 92, Clinton Place, New York.
Hall, I. H., 36, Pine Street, New York.
Hallock, Prof. L. W., Bridge Hampton. Suffolk Co.
Hankenson, E. L., Newark, Wayne Co.
Hartt, Prof. C. F., Cornell Univer., Ithaca.
Haskell, Miss C. C., Vassar College, Poughkeepsie.
Hazeltine, Dr. G. W., Jamestown.
Healy, Dr. E. P., Medina.
Hexamer, Dr. F. M., New Castle, Westchester Co.
Hogg, James, 84th Street and East River, New York.
Holmes, E. S., Wilson, Niagara Co.
Hooper, Mrs. Nancy S., Binghamton.
Hough, Franklin B., Lowville, Lewis Co.
Howard, W. J., 345, Grand Street, New York.
Howe, Dr. Elliott C., Yonkers.
Hoysrodt, L. H., Pine Plains, Dutchess Co.
Hume, Prof. Gilbert L., 261, Cumberland Street, Brooklyn.
Hunt, Edwin, Utica.
Hyatt, Prof. James, Stanfordville P. O., Dutchess Co.
Hyatt, J. B., Morrisania.
Jacobi, Dr. Mary Putnam, 110,W. 34th Street, New York.
Johnson, Miss Amy E., Poughkeepsie.
Keenerg, Mrs. N. B., Le Roy, Genesee Co.
Kellerman, W. A., Ithaca.
Kunze, Dr. R. E., 606, 3d Ave., New York.
Leggett, Wm. H., 224, E. 10th Street, N. Y.
Le Roy, P. V., Curator of Torrey and Meissner Herbarium, Col. Coll. 49th Street, N. Y.
Lord, H. B., Ithaca.
Martin, Prof. D. S., 236, W. 4th Street, N. Y.
Maxwell, S. M., New York.
McIntyre, B. F., 10, Gold Street, New York.
McNeil, John A., Binghamton.
Merriam, Jas. S., 29, William St., New York.
Miller, E. S., Wading River, Suffolk Co.
Millington, Mrs. L. A., Glens Falls, Warren County.
Monks, Miss Sarah P., Cold Spring.
Morris, O. W., Cooper Institute, New York.
Mundy, E. W., Syracuse.
Murphy, C. P., Middletown, Orange Co.
Nason, Prof. Henry B., Rens. Polytech. Inst., Troy.
Newberry, Dr. J. S., Col. Coll., 49th Street, New York.
Orton, Prof. James, Vassar College, Poughkeepsie ?
Orton, Dr. J. G., Binghamton.
Osborne, Dr. C. S., 204, Schermerhorn Street, Brooklyn.
Paine, Rev. John A., Jr. *Absent in Palestine.*
Parker, Thomas J., 115, W. 16th Street, N. Y.
Parsons, S. B., Flushing, Queens Co.
Peck, Chas. H., State Botanist, Albany.
Peters, Dr. C. H. F., Clinton, Oneida Co.
Pike, Nicholas, care of J. T. Pike, 72, Wall St., N. Y.
Pollard, F. A., 13 and 15, City Hall Square, New York.
Pooley, Dr. J. H., Yonkers, Westchester Co.
Prentiss, Prof. A. N., Cornell University, Ithaca.
Puissant, P. A., Troy.
Rockwell, Rev. Mrs. Charles, East Hampton, Suffolk Co.
Root, Prof. Oren, Clinton, Oneida Co.
Ruger, M. C., 8½, Cannon Street, N. Y.
Scofield, Samuel L., 1st Ave. and 27th Street, New York.
Skinner, Dr. A. G., Youngstown, Niagara Co.
Smith, Prof. H. L., Geneva.
Stevens, Dr. George T., Albany.
Stillwell, Chas. M., 94, Wall St., N. Y.
Sutten, G. B., Newark Valley, Tioga Co.
Sweezy, Mrs. John C., Riverhead, Suffolk Co.
Swift, Henry M., Chestnut Ridge, Dutchess County.
Thomas, John J., Union Springs, Cayuga Co.
Thurber, Prof. Geo., 245,Broadway, New York.
Van Brunt, C., Poughkeepsie.
Van Gieson, Rev. A. P., Poughkeepsie, Dutchess Co.
Wall, J. L., 338, 6th Ave., New York.
Ward, James W., 1, W. 47th Street, New York.
Ward, Dr. R. H., 53, Fourth Street, Troy.
Ward, Rev. W. H., Box 2787, P. O., New York.

Wibbe, Rev. Father Herman, Sandlake, near Albany.
Wilber, G. M., 140, W. 20th St., New York.
Willey, Mr. ——, Principal of Acad., Suspension Bridge.
Willis, Prof. O. R., White Plains, Westchester Co.
Wilson, Miss D., Glens Falls, Warren Co.
Wilson, Miss M. L., Buffalo.
Winchell, Dr. Alexander, Chanc. Syrac. Univ., Syracuse.
Wood, Prof. Alphonso, West Farms.
Woolson, Geo. C., 245, Broadway, New York.
Wright, Dr. Samuel H., Penn-Yan, Yates Co.
Youmans, Miss Eliza, care of Prof. E. L. Youmans, 2, E. 15th St., N. Y.
Young, Henri W., Aquebogue P. O., Suffolk County.

NORTH CAROLINA.

Kerr, Prof. W. C., State Geologist, Raleigh.

OHIO.

Beardslee, Dr. H. C., Painesville.
Buchanan, Robert, Cincinnati.
Carter, Dr. Francis, Columbus.
Cassells, Prof. J. Lang, Hudson.
Comstock, Prof. T. B., Cleveland.
Hussey, Rev. John, Lockland, Hamilton Co.
Kirtland, Dr. Jared P., Cleveland.
Klippard, John H., Columbus.
Lesquereux, Prof. Leo, Columbus.
Loring, Dr. Starling, Columbus.
Norton, Dr. O. D., 167, Central Avenue, Cincinnati.
Orton, Presd. Edward, Columbus.
Salisbury, Prof. J. H., Cleveland.
Sullivant, Jos. E., Columbus.
Townshend, Dr. Norton S., Columbus.
Warder, Dr. J. A., Cleves, Hamilton Co.
Warren, Rev. —, Nelsonville.

OREGON.

Nevius, Rev. R. D., Portland.

PENNSYLVANIA.

Ames, Mrs. Fanny G., Germantown.
Bechdolt, Robert, Bethlehem.
Berry, W. A., Williamsport.
Bodley, Miss Rachel L., Woman's College, Philadelphia.
Boeking, H. V., Civ. and Mn. Eng., Pittsburg.
Bourquin, J., Philadelphia.
Bridges, Dr. Robert 119, S. 20th Street, Philadelphia.
Buckhout, Wm. A., Penn. Agric. Coll.
Burk, Isaac, 4th and Coates Streets, Philadelphia.
Carson, Dr. Joseph, Philadelphia.
Carter, J. J., Lyle, Lancaster Co.
Cressman, Philip, Prin. Pub. School, Philadelphia.
Darrach, Dr. J., Germantown.
Davis, Miss N. J., Birmingham, Huntingdon County.
Ennis, Prof. Jacob, Philadelphia.
Garber, A. P., Columbia, Lancaster Co.
Gentry, T. G., Sharpnack Street, Germantown.
Green, Prof. Traill, Easton.
Hassler, Dr. F. A., 4001, Chestnut Street, Philadelphia.
Hess, Dr. Robert J., Bethlehem.
Hoopes, Josiah, West Chester.
Hunt, Dr. J. Gibbons, 123, N. 10th St., Philadelphia.
Jack, Dr. Louis, 16th and Locust Sts., Phila.
Jackson, Halliday, West Chester.
Kilvington, Robert, Philadelphia.
Knipe, Rev. S. W., Delaware Water Gap.
Leffman, Dr., Philadelphia.
Leidy, Prof. Joseph, 1302, Filbert Street, Philadelphia.
Lesley, Prof. J. F., 1008, Clinton St., Philadelphia.
Long, Dr. J. F., Hubblesburg, Centre Co.
Lowrie, J. B., Warriorsmark, Huntingdon County.
Meehan, Thomas, Germantown.
Michener, Dr. Ezra, Toughkenamon, Chester Co.
Moyer, Dr. I. S., Quakertown.
Porter, Prof. Thos. C., Easton.
Ralston, Prof. J. G., Norristown.
Rau, Eugene A., Bethlehem.
Rau, Robert, Bethlehem.
Redfield, John H., 216, W. Logan Square, Philadelphia.
Rothrock, Dr. Joseph T., West Chester.
Seal, Thomas F., Unionville, Chester Co.
Shaffer, Dr. Charles, Philadelphia.
Sinclair, J., Lithographer, Philadelphia.
Smith, Aubrey H., 435, Liberty St., Philadelphia.
Smith, Chas. E., 216, S. 12th St., Philadelphia.
Smith, Daniel B., Germantown.
Stauffer, Jacob, Lancaster.
Tryon, Geo. W., Jr., Acad. Nat. Sci., Philadelphia.
Waring, W. G., Tyrone.
Whittem, Wm. A., Chestnut Hill, Philadelphia.
Wirt, I. R., McVeytown.
Wister, W. Wynne, Germantown.
Wolle, Rev. Francis, Bethlehem.
Wood, Prof. H. C., Jr., 1706, Chestnut St., Philadelphia.

RHODE ISLAND.

Bailey, W. W., Providence.
Bennett, Jas. L., Providence.
Clark, Jas. H., Newport.
Congdon, Joseph W., East Greenwich.
Hunt, George, Providence.
Olney, Stephen T., 18, Brown St., Providence.
Trippe, Miss Ella F., Providence.

SOUTH CAROLINA.

Gibbes, L. E., Charleston.
Mellichamp, Dr. J. H., Bluffton.
Ravenel, H. W., Aiken.

TENNESSEE.

Blakie, Geo. S., Nashville.
Branham, Prof. J. R., Brownsville College.
Curtis, Dr. Josiah, Knoxville.

TEXAS.

Buckley, S. B., Austin.
Lindheimer, Ferdinand, New Braunfels.
Reverchon, J., Dallas.
Young, Mrs. M. J., State Botanist, Houston.

UTAH.

Townsend, J. L., Salt Lake City.

VERMONT.

Brainard, Prof. H., Middlebury College.
Brown, Mrs. A. E., Box 89, Brattleboro.
Cutting, Dr. H. A., Lunenburg.
Frost, Chas. C., Brattleboro.
Herrick, M. L., Rutland.
Perkins, Prof. Geo. H., Burlington.
Phelps, Dr. Edward E., Windsor.
Pringle, C. G., Charlotte.

VIRGINIA.

Curtiss, A. H., Liberty, Bedford Co.
Shriver, Howard, Wytherville, Wythe Co.
Stabler, Dr. R. H., Alexandria.

WASHINGTON TERRITORY.

Smith, Prof. C., Vancouver Seminary.

WISCONSIN.

Bingham, Miss Ada B., Monroe.
Copeland, Prof. H. E., White Water.
Daniells, Prof. W. W., Madison.
Douglas, Dr. James S., Milwaukee.
Jordan, Prof. D. S., Appleton, Outagamie Co.
Kumlien, Thure, Busseyville P.O.
Lapham, I. A., LL.D., Milwaukee.
Sherman, Dr. Lewis, Milwaukee.

RESIDENCE UNKNOWN.

Burbank, Prof. I. S.
Holzer, Rev. L.
Shattuck, Miss M. M.

West Indies.

Blain, José, near Santa Cruz, Jurisdicion de San Cristobal, Cuba.
Court, Dr. I., Port of Spain, Trinidad.
Dahl, Christian, St. Croix.
Gundlach, Juan (Johannes), Havana, Cuba.
Krebs, Henry, St. Thomas.
March, W. T., Spanishtown, Jamaica.
Morales, Dr. Sebastian Alfredo de, Calle de Velarde, No. 5, Matanzas, Cuba.
Presas, Manuel J., *ibidem*.
Sauvalle, Francisco Adolfo, Habana, Cuba.
Wilson, Nathaniel, Botanic Gardens, Bath, Jamaica.

***Terms**—For the Bulletin, One Dollar per annum; For the Directory alone, 30 cents.*

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

SUPPLEMENT.

Jones, Dr. M. B., Sandy Hill, Washington Co., N. Y.
Pierron, Edward, Beattie, Westmoreland Co., Pa.
Schneck, J., Mount Carmel, Ill.
Zabriskie, Rev. J. L., *Spec. Fungi.* New Baltimore, Greene Co., N. Y.

Harbour, G. P. Iowa, should probably be, Harbour, J. P. (of Hall and Harbour's Rocky Mt. Collection), Macon Co., Ill.?
Scovill, Dr. J. T., Terre Haute, Ind.
Blake, Rev. Joseph, Gilmanton, N. H.
Johnson, James K., Camden, N. J.
Merryweather, Miss Annie, Camden, N. J.
Bourquin, Fred. W., Newburgh, N. Y.
Brinkhorn, Wm., Philadelphia, Pa.
Dunning, Joseph, Philadelphia, Pa.
Garber, Dr. A. P., State Lunatic Hospital, Harrisburg (not Columbia), Pa.
Howarth, Wright, Philadelphia, Pa.
Hubband, Henry, Philadelphia, Pa.
Jones, Abraham, Philadelphia, Pa.
Price, Emanuel, Philadelphia, Pa.
Worley, George, Philadelphia, Pa.
Chamberlin, Prof. T. C., White Water, Wis.

§ **61. The Bulletin.**—The next number will begin the fifth volume of our little publication. When that volume closes we purpose issuing an index to the five volumes, so that that portion may be bound. Our subscribers will confer a favor by remitting 12 cents for postage, it being very inconvenient to send our unpaid mail to the general office. For the same reason station D is preferable for money orders.

We take this occasion to reiterate our hope that some of the more wealthy friends of science, to secure the permanency of the Bulletin, will endow it with a publishing fund of three thousand dollars.

§ **62. The Botanical Directory.**—We tender our sincere thanks to the many friends of the undertaking, who have, by their emendations and suggestions, enabled us to give a much better list of the active botanists of this part of the world than has yet appeared. We have considerably more than doubled the number in the Salem Directory, published some years since. Our list was based on that, and Mr. Putnam most kindly seconded our project. Some of the old names we have not been able to verify, but all the new ones, we are assured, are those of persons really interested in some branch of the science.

It has occurred to us that it would be well in the next edition to append a list of considerable general and special herbaria and libraries, to facilitate references in our wide territory. We solicit contributions of information on these heads, as well as corrections and additions for the Directory proper.

§ **63. Elliottia racemosa,** Muhl.—At the meeting of the Club, October 28, specimens of *Elliottia* were distributed. These specimens were collected by Mr. P. J. Berckmans, who has discovered a fine locality for the plant not far from his residence near Augusta, Georgia. As the fruit of *Elliottia* is still undescribed, Mr. Berckmans was requested to procure specimens if possible. He writes, on one of the last days of October, that some of the plants are still in flower, but that no vestige of fruit of any kind is to be found. The plant, through the kindness of Mr. Berckmans, will soon be in cultivation, and then we may be able to discover to what this lack of fructification is due. G. T.

§ **64. New Publications.**——1. *Prodromi Systematis Naturalis Vegetabilium Historia, Numeri, Conclusio*, by Alphonso De Candolle (from the last vol. of the Prodromus), Paris, 1873.——2. *Reflexions sur les Ouvrages Generaux de Botanique Descriptive*, by the same, Geneva, 1873. The former of these pamphlets, as its name implies, is a brief account of the history of the Prodromus, of the share of the various contributors to the work, and an enumeration of the genera (5134, Composit. 911), and species (58975, Composit. 8561) described, a large proportion being newly determined in this great work of three generations. It was begun by Augustin Pyramus De Candolle, who published the first vol. in 1818. The elder De Candolle died in 1841. His son Alphonso carried on the work, with the assistance, as before, of other botanists, among whom was his son Casimir. This year (1873) the last (XVIIth) vol. was published, the whole embracing, after all, only

the Dicotyledons. It was found necessary at this point to bring the undertaking to a close, "*ne tertiam botanicorum generationem occideret!*" The eight genera of Dicotyledons most numerous in species are: Solanum, 915; Euphorbia, 751; Senecio, 601; Croton, 461; Phyllanthus, 447; Erica, 429; Salvia, 410; Peperomia, 389. Next to the elder De Candolles, J. Muller and G. Bentham contributed most, and next to these, C. F. Meissner and Dunal. The last ten volumes contain, in fact, not a mere revision but a complete set of monographs. In the second pamphlet, the author reviews the general works of descriptive botany, which have already appeared, and offers some thoughts on what method is to be pursued hereafter. He recognizes the need of a more profound microscopical study of the structure and evolution of plants, which the advanced state of the science demands. He thinks that, by distributing the task among twenty-five botanists, the Phanerogams, estimated at 110,000 species, might be described in about fifteen or sixteen years. In twenty or thirty years from this time, we shall approximate so nearly to a complete knowledge of flowering plants (at least Dicotyledons) as to make a new description desirable. In the mean time he recommends the publication of good monographs. His father instituted a quinquennial prize of 500 francs for the best monograph of a genus or a family of plants. The next prize will be decreed in September, 1874. The Club is indebted to the distinguished author for these publications. ——3. *Botanical Contributions to the Proceedings of the Am. Acad. of Arts and Sciences*, by Asa Gray; 1873. (1). *Characters of New Genera and Species of Plants.* We have only room to notice: *Aquilegia leptocera, var. flava*, Gray, the golden Columbine of New Mexico, etc., recognized as a distinct species with the name *A. chrysantha*: *Pachystima Canbyi*, Giles Co., Va., an addition to our Eastern flora: *Hosackia Torreyi*, first gathered in the Sierra Nevada by Dr. Torrey: *Dirca occidentalis*, California. (2) *Notes on Compositæ and Characters of certain Genera and Species*, etc. Part I. This is to a certain extent a commentary on Bentham's revision of the order.—— 4. *Contributions to American Botany*, by Sereno Watson. (1) *New Plants of Arizona*, from the American Naturalist. (2) *On Section Avicularia of the Genus Polygonum*, from the American Naturalist. *P. Torreyi* was gathered by Dr. Torrey in the Yosemite Valley. (3) *Revisions of the Extratropical North American Species of the Genera Lupinus, Potentilla and Œnothera*, from the Proc. of Am. Acad., 1873, with copious synonomy and references, an important contribution on very difficult subjects. Dr. Allen's variety *humifusa* (Vid. Bull. Vol. 1. No. 1.) of *Œnothera fruticosa* is maintained. Mr. Watson has taken a place among our leading botanists. The synonomy and references in this contribution present a model of thorough workmanship.——5. *Circulation of Sap in Plants*, by Wm. S. Clark, President of Mass. Agric. Coll., *Amherst Record*, Wednesday, Dec. 17, 1873; read at Fitchburg, Dec. 2nd. This is essentially an account of some highly interesting experiments and observations, carried on for months, night and day, on a great variety of trees and shrubs, particularly Maples, Birches, and Vines. We hope it will be published in a

form better adapted for preservation and with fuller details. As for the *rationale* of the movement, it has been carefully studied by others, Draper in this country and Sachs, for example, in Germany (confer *Lehrbuch*, 1873), whose investigations are entitled to respect. It is stated that Prof. Agassiz was present at the reading of this paper and gave it his emphatic approbation. His voice was ever prompt to encourage any direct interrogation of Nature,and botanists, as well as others, will miss his powerful influence in favor of science. ——6. *The American Journal* for Nov. and Dec. contains as usual interesting botanical notices by Dr. Gray, particularly on the carnivoracity of *Sarracenia*, *Drosera* and *Dionœa*.——7. In *Nature*, Nov. 20th, Hermann Muller elucidates the remarkable varieties of Viola tricolor, in reference to self- or insect-fertilization.——8. *The American Naturalist* regularly devotes a portion of its pages to botanical notes. As cited above, two of Watson's *Contributions* were first published in it. In the December number the Publishers make an earnest appeal for more liberal support. The botanist needs to have some intelligence of what is doing in other branches of Natural History, and nowhere will he find it so accessible as in this handsomely printed and ably edited Monthly. If our readers will follow our advice, every one will subscribe to the *American Naturalist*, the *American Journal of Science and Art*, the *American Agriculturist* and *Nature*.

§ **65. Chenopodium leptophyllum,** Nutt.——In examining the Chenopodiaceæ in Prof. Eaton's herbarium, I was quite surprised to find a specimen of *C. leptophyllum*, collected by him at Absecom, N. J., "in maritimis." It is not very rare from Colorado to New Mexico and westward, but this is the only Eastern specimen I have seen. I would like to call the attention of Eastern botanists to their collections, to ascertain if it has been gathered elsewhere.

It is readily distinguishable—quite farinose, erect, slender, somewhat strict; the leaves all linear, entire and short-petioled; the flower and seeds smaller than in *C. album*, from which it may also be at once known by the pericarp's readily separating from the seed, on rubbing between the fingers, leaving it smooth and shining. I would like to see the species confirmed as an Eastern one.

I would also like to ascertain whether *C. Boscianum* (*C. album, var. Boscianum* of Gray's Manual, excluding synonym *C. Borlandieri*,) has been found north of Pennsylvania. It ranges west to Kentucky and Texas.

C. album, C. Boscianum and C. Borlandieri are all good species.

BOTANIC GARDEN, CAMBRIDGE, *Oct.* 27, SERENO WATSON.

§ **66. Fertilization of the Yucca.**—Dr. Englemann communicated to; the *Bulletin* some months ago, the interesting fact that the flowers were so constructed that self-fertilization was well-nigh impossible and, further, that impregnation was accomplished through the agency of a small night-moth, *Pronuba Yuccasella*. In connection with this subject, it may be interesting to note that, when making botanical collections in the Rocky Mountains of Colorado in 1871, I found the *Yucca angustifolia* producing seed abundantly everywhere. During my explorations the past season, though the plants were frequently met with, I did not find one single pod of seed, though

the plants had evidently flowered. True, I was not in the exact localities of the former year, and could not say positively the same plants seeding then were not seeding now, but I presume this was the case. Was the insect *Pronuba Yuccasella* absent last year?

THOMAS MEEHAN.

§ 67. **New Species of Fungi**, by W. R. GERARD. *No. II.*

Septoria Noli-tangeris. *n. sp.*—Spots roundish or oblong, brown perithecia minute, black, aggregated in centre of spots; spores thread-shaped, hyaline, .0006′—.0008′ long.

On leaves of *Impatiens Balsamina*, in gardens, September, Poughkeepsie.

Septoria maculosa. *n. sp.*—Spots roundish or elongated, whitish; perithecia black, very minute, densely crowded, spores thread-shaped, hyaline, .001′—.0016′ long.

On leaves of *Cuphea viscosissima*, Poughkeepsie, October.

Diplodia Thorniana. *n. sp.*—Perithecia globose, black, confluent, bursting through the fissured bark. Spores broadly oval, uniseptate, brown, .0008′—.001′x.00043′.

On dead branches of *Symphoricarpus racemosus*, in garden of S. Thorn, Esq., Poughkeepsie, July.

Peziza fusicarpa. *n. sp.*—Cup hemispherical, sessile, ochreous, externally clothed with minute hairs, margin involute. Hymenium at first ochreous, at length dark-brown. Spores narrowly elliptical or fusiform, binucleate, 0015′x.0005′. Paraphyses clavate, at length filled with dark-brown granules.

Among mosses, July—September, Poughkeepsie.

Peziza pulchra. *n. sp.*—Cup sub-hemispherical, stipitate, externally smooth, pale cream-colored, disk orange-yellow; stipe attenuated downward. Spores oval, .0005′x.0003′.

Among decaying leaves, under pines, Poughkeepsie, August.

Hysterium magnosporium. *n. sp.*—Perithecia superficial, elliptic, longitudinally striate. Spores broadly elliptical, obtuse, dark-brown, 7-septate, with a large globose nucleus in each cell, .0023′x .0007′.

In this species the spores are not equally divided; the three septa forming the two middle cells are always much wider apart than the others.

On decorticated branches of hickory trees. Poughkeepsie.

Hypomyces Van-Bruntianus. *n. sp.*—Perithecia globose, densely crowded, pallid, hygrophanous, immersed, with a short, thick, exserted, obtuse mouth, subiculum white. Spores hyaline, oblong, shortly apiculate at the broad end and obtusish at the other, .0006′ x.0002′. Asci cylindrical.

On pileus, stipe and gills of an unknown *Agaricus*, Poughkeepsie, October.

NOTE—In first series of Fungi, page 48, read *Peziza chrysophthalma*, not "*chrisophthalma.*"

Terms.—One dollar per annum, beginning with the January No.: For the Botanical Directory alone, 30 cents. Back volumes on hand.

Local Herbarium, 3, E. 33d St.—Editor 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½, P. M.